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Leadership behavior impact on employee engagement

Michelle J. Marquard

Pepperdine University

Graduate School of Education and Psychology

LEADERSHIP BEHAVIOR IMPACT ON EMPLOYEE ENGAGEMENT

A dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Education in Educational Technology and Leadership

by

Michelle J. Marquard

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Monica Goodale, Ed.D – Dissertation Chairperson

This dissertation, written by

Michelle J. Marquard

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

Faculty Committee:

_____
Monica Goodale, Ed.D., Chairperson

_____
Farzin Madjidi, Ed.D.

_____
Carmel Benson, Ph.D.

_____
Eric R. Hamilton, Ph.D.
Associate Dean

_____
Margaret J. Weber, Ph.D.
Dean

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

DEDICATION

For Clark, Jillian, Cole, Halle, and Dillon

While this study represents the culmination of my doctoral study, the cumulative effort this project represents would not have been possible without the support of my loving husband and children. It was the birth of my eldest daughter, Jillian, that provided the impetus for my return to school. My desire to be a role model inspired me to re-imagine my own future.

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"The urge to live a life of meaning is one of our most elemental desires as human beings. We want to make a difference in the world; we need to leave our footprint in the sands of time to mark our existence. By honoring the beliefs and values we hold dear, we allow ourselves to live lives that matter."

–Dorsey, C. L., & Galinsky, L. (2006). *Be bold: Create a career with impact*. Fish Hoek, South Africa: Echoing Green.

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As a colleague and committee member I extend a special thanks to Dr. Carmel Benson for her support and camaraderie.

VITA

MICHELLE MARQUARD

EDUCATION

ED.D. EDUCATION: EDUCATION TECHNOLOGY AND LEADERSHIP (2010)

PEPPERDINE UNIVERSITY, GRADUATE SCHOOL OF EDUCATION AND PSYCHOLOGY – Malibu, CA

MASTER OF BUSINESS ADMINISTRATION, eBusiness (2004)
NOTRE DAME DE NAMUR UNIVERSITY, SCHOOL OF BUSINESS AND MANAGEMENT – Belmont, CA

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION, TECHNOLOGY MANAGEMENT (2001)
NOTRE DAME DE NAMUR UNIVERSITY, SCHOOL OF BUSINESS AND MANAGEMENT – Belmont, CA

PROFESSIONAL EXPERIENCE

CISCO SYSTEMS, INC. – San Jose, CA 1996 to Present

DIRECTOR, LEARNING SOLUTIONS, HUMAN RESOURCES (2004 to PRESENT)

LED SEVERAL SIGNIFICANT SHIFTS IN THE LEARNING AND TALENT MANAGEMENT ORGANIZATIONS

- DROVE A TRANSITION FROM A CORPORATE UNIVERSITY CONSTRUCT WITH A WEB1.0 LEARNING EXPERIENCE TO MY LEARNING NETWORK (MLN) ENABLED BY SERVICES AND A ROBUST PERSONALIZATION STRATEGY. MLN FOSTERS A SHIFT FROM LEARNING AS PREDOMINATELY COURSE-BASED TO A BLEND OF COURSE-BASED SOLUTIONS COUPLED WITH INTERACTIVE TECHNOLOGIES THAT CREATE A PLATFORM FOR UTILIZING MULTI-MEDIA AND SHARING THROUGH CONCEPTS OF COMMUNITY AND COLLABORATION.
- SUCCESSFULLY LED AN ENTERPRISE EFFORT TO DESIGN, DEVELOP, AND IMPLEMENT A CORPORATE COMPETENCY MODEL (C-LEAD) FOR MANAGERS. THE C-LEAD PORTFOLIO INCLUDED THE IMPLEMENTATION OF SUPPORTING ASSESSMENT AND DEVELOPMENT SOLUTIONS INTEGRATED INTO CISCO'S TALENT MANAGEMENT PRACTICES. BUILDING FROM AN ENTERPRISE COMPETENCY MODEL I SPONSORED THE TRANSITION FROM A DISTRIBUTED (FUNCTIONALLY-BASED) APPROACH TO MANAGEMENT AND LEADERSHIP DEVELOPMENT PRACTICES TO BROAD-BASED AGREEMENT FOR A SYSTEMS APPROACH TO MANAGEMENT EXCELLENCE.
- THROUGH A SYSTEM OF PARTICIPATORY GOVERNANCE LED THE FORMATION OF A STRATEGY FOR AND PROGRAMMATIC EXECUTION OF THE TRANSITION TO CENTRALIZATION OF ALL EMPLOYEE-BASED LEARNING AND DEVELOPMENT; 26 DIFFERENT L&D ORGANIZATIONS, 180 EMPLOYEE AND CONTRACTOR RESOURCES, AND $330M BUDGET.

- Led the implementation of a technology enabled executive talent review process (leadership review "9 block", scenario planning, succession planning, risk assessment, development planning, etc.). Delivered a reporting solution on the state of talent at Cisco that is published and presented annually to Cisco's board of directors.

Director, Corporate Learning, Human Resources (2002 to 2004)

Key leader in formulating a common vision and driving the development of integrated talent management processes

- Successfully led the design, development, and implementation of an enterprise skills architecture.
- Built strong business relationships with key functional L&D leaders and reputation as a trusted partner through a learning strategy that balanced a focus on operational excellence with a well articulated commitment to learning innovation.
- Key contributor in the creation and implementation of Cisco University – a cross-enterprise collaboration with functional L&D leaders – focused on providing guidance to Cisco employees on the integration of career and development planning.

Senior Manager, Performance Technology – Operations (1999 to 2002)

Managed $20M budget and 21 direct reports [US, AsiaPac, and EMEA] including Instructional Designers, Web Content Managers, Program Managers, and Instructor community. Core team-member of council driving collaborative learning practices across Cisco.

- Architected strategy for, and implementation of, transition to integrated performance architecture supported by a reusable learning architecture delivering on-line learning and desktop support solution for globally distributed manufacturing organization
- Launched next version of ERP using 100% object-oriented learning strategy to delivery learning content and integrated knowledge support system across 4 continents, 15 countries with out disruption to build or ship processes before/after go-live (Oracle 10.7 to 11i).

Manager, Process Architecture – Operations (1996 - 1999)

Provide leadership to the design and operational execution of Cisco's transition from a manufacturing organization to a supply chain management organization; through the design and development of integrated and technically enabled intelligent business processes.

flextronics international – San Jose, CA 1992 to 1996

Account Manager

Collaborated with manufacturing production and customer account base to manage relationships and business development activity; responsibilities included several significant customers including IBM, Intel, and Silicon Valley Group.

ADVISORY POSITIONS, BOARDS, COMMITTEES, AND MEMBERSHIPS

STRATEGIC ADVISORY, SYNERGIES IN SYNC (2009-PRESENT)

MEMBER: SOCIAL LEARNING EXECUTIVE COUNCIL CORPORATE UNIVERSITY EXCHANGE (2009)

ADVISOR TO CHAIRMAN, EUROPEAN CORPORATE LEARNING FORUM (2007-PRESENT)

BOARD OF DIRECTORS, ALMADEN VALLEY YOUTH SOCCER LEAGUE (2005 – 2007)

LECTURES, SPEAKING ENGAGEMENTS, AND WHITE PAPERS

THE GRACE HOPPER CELEBRATION OF WOMEN IN COMPUTING (2009)

IMAGINING TOGETHER: USING TECHNOLOGY AND EXTREME IDEAS TO SOLVE THE TOUGHEST PROBLEMS OF THE WORLD

PANEL PARTICIPANT: BAY AREA HUMAN RESOURCE EXECUTIVE COUNCIL (BAHREC) (JULY 2009)

PANEL DISCUSSION ON EMPLOYEE ENGAGEMENT

PANEL PARTICIPANT: THE SOUTH BAY ORGANIZATIONAL DEVELOPMENT NETWORK (SBODN) (JUNE 2009)

PANEL DISCUSSION ON THE FUTURE OF LEARNING & DEVELOPMENT

PANEL PARTICIPANT : HR PROFESSIONALS WEBINAR SERIES (AUGUST 2009)

EXTENDED LEARNING MODELS: WHY EVENT-BASED LEARNING MODELS ARE FAILING

CORNELL UNIVERSITY ILR SCHOOL (SPRING 2009)

GUEST LECTURER: TALENT MANAGEMENT PRACTICES AND BLENDED LEARNING STRATEGY

CALIFORNIA COUNCIL FOR EXCELLENCE FALL CONFERENCE (SEPTEMBER 2008)

KEYNOTE SPEAKER

PARIS INTERNATIONAL CONFERENCE ON EDUCATION, ECONOMY AND SOCIETY (JUNE 2008)

THE PROBABILITY OF USING WIKIS TO LEARN DATA ANALYSIS AND STATISTICS

SOCIETY FOR INFORMATION TECHNOLOGY AND TEACHER EDUCATION INTERNATIONAL CONFERENCE (MARCH 2008)

THE REALITIES OF IN-WORLD: TAKING PROACTIVE MEASURES FOR LEARNER AND EDUCATOR SAFETY.

PREVENTATIVE MEASURES FOR DISRUPTIONS IN VIRTUAL LEARNING ENVIRONMENTS

HAWAII INTERNATIONAL CONFERENCE ON ARTS AND HUMANITIES (DECEMBER 2007)

THE PROBABILITY OF USING WIKIS TO LEARN DATA ANALYSIS AND STATISTICS

CLO SYMPOSIUM (OCTOBER 2007)

THE NEW FRONTIER: EXPLORING THE FUTURE OF ENTERPRISE EDUCATION: LEVERAGING ONLINE LIBRARIES IN WORKPLACE

ABSTRACT

As the age of employer enlightenment continues to unfold, for the past half-century researchers have collected mounting empirical evidence linking management theory and environmental factors to worker productivity. The rise of professional research over the past several years has however signaled a change in the marketability of this research within the business community. The change is prompted by a newfound interest in workforce productivity as a source of profitability (Colan, 2009; Corporate Leadership Council, 2004; Gebauer, Lowman, & Gordon, 2008; Thomas, 2000, 2009). The study of management systems, the system of interrelationships between supervisory characteristics and organizational performance, has gained new found interest through common underpinnings innate to measures of employee engagement. The profit potential born out of workforce productivity now has business leaders seeking to understand the management and leadership practices that show a strong relationship to employee commitment. Savvy business leaders understand the new economy is dependent upon leaders nurturing the commitment and goodwill of the employee population. Employee attitudes expressed in the research as employee commitment, and more recently as employee engagement, capture the relationship between employee's perceptions and how those perceptions translate into organizational performance.

The ability to increase organizational performance depends upon the quality of leadership within an organization, and the literature has established solid linkages between employee engagement and organizational performance. This study seeks to identify and determine the relationship between leadership behaviors, employee engagement and organizational performance in an effort to effect positive change.

Chapter 1: Introduction

Although the research community has been working diligently for the past half century to uncover specific patterns of management that link employee sentiment to organizational performance, the compelling nature of their findings has yet to take root in American business. Further, despite the passage of time, Likert's (1961) commentary on the state of American business remains, in general terms, a present day reality:

> Most companies have a fair amount of information about the market and their share of it. Some companies have continuous information as to customer reactions to their products and to competing products. Much less attention is given, however, to another class of variables which significantly influence the end results. These variables, seriously neglected in the present measurements, reflect the current condition of the internal state of the organization: its loyalty, skills, motivations, and capacity for effective interaction, communication, and decision-making. (p. 61)

Company X, like other companies in the United States and abroad, has yet to fully understand the variables that constrain and increase organizational productivity and performance (Likert, 1961). Yet it is precisely organizations like Company X, with its distributed global workforce, that depends on this knowledge in order to remain competitive in today's challenging business environment. The lack of time and attention to patterns of management are perplexing given the continued focus on workforce productivity as a source of untapped performance and profitability. Even though business executives are inherently interested in workforce productivity and understand they should be focusing on building leadership talent, they have yet to anchor their focus in a way

that delivers measurable value to the business. To get and hold the attention of business executives the story of organizational practices and employee commitment must be clearly tied to productivity and performance; it is through a focus on organizational practices that "the quality and performance capacity of its human organization will be revealed" (Likert, 1961, p. 61).

This study explored the common characteristics of three disciplines within the social science domain; leadership theory, management and organizational systems, and employee engagement.

Problem Statement

Company X is under continued and increasing pressure to increase profitability at a point in time when the threat of commoditization is ever present. Commoditization[1] forces prices downward and downward pricing reduces profitability. In order to deal with this downward pressure on pricing, companies, including Company X, look for new ways to reduce the cost of production as a way of maintaining their profitability. Since the industrial era, American business has grappled with this cycle, one that has executives looking at employee productivity as a method of maintaining desired levels of performance and profitability. This study represented an opportunity to examine the relationship between organizational systems and how an employee is situated within the organization in a way that maximizes employee commitment and organizational performance.

[1] Commoditization is a lack of meaningful differentiation in the marketplace such that no premium can be charged for the product of service being sold. Commoditized products are sold on the basis of cost.

The Purpose of the Study

The purpose of this quantitative study was to identify the leadership and supervisory characteristics that are most closely aligned to increased levels of employee engagement. Further, this study seeks to understand the relationship between increased levels of employee engagement and organizational performance as measured by output variables aligned to company quality measures. The data emerging from this study will be used to inform selection, development, and rewards in an effort to increase leadership effectiveness and by extension organizational performance.

The study will used 360 assessment survey data collected over the course of the past twelve months; employee engagement survey data collected through March 2009, and associated company quality measures. The data was be combined into a matched data set that supported the exploration of 360 supervisory and leadership competencies, employee engagement scores, performance ratings, and organizational quality measures.

Supervisory and leadership 360 assessment. The leadership model at Company X – the executive C-LEAD model – was developed in 2006 in an effort to standardize, clarify, and advance leadership practices within the company. The C-LEAD model is an amalgamation of leadership competencies believed to be essential for driving transformational change within Company X. The C-LEAD model has an associated 360 assessment survey developed in partnership with the Booth Company (The Booth Company, 2007). The assessment survey measures leadership competencies aligned to the C-LEAD model. The C-LEAD 360 assessment survey that provides a method of evaluating executive competencies found in the C-LEAD executive competency model are outlined in Appendices A and B. Permission to utilize the 360 assessment data in this

study is provided by The Booth Company in Appendix C. The psychometric properties of the C-LEAD 360 assessment survey are discussed in chapter three.

The use of the C-LEAD 360 leadership assessment data over leadership self assessments such as those created by Avolio and Bass (2004) Multifactor Leadership Questionnaire (MLQ, 3rd ed.) and the Hay Group since the 360 data provides self, next line supervisory, and subordinate input improving reliability as well as the face and construct validity to the study. In addition to improving the reliability and validity of the study, the data is captured as a part of leadership development process and is therefore preexisting and readily available to the researcher. It should be noted that the next line supervisory data will be removed from the data set as it is not relevant to the study. It is the relationship between self-perception and subordinate perception manifest in the 360 results and the perception of the subordinate responses within the employee engagement survey the researcher seeks to understand.

Engineering executives are well represented in the existing 360 data, making them an ideal population for the study. As of March 23, 2009 nine percent of the 388 engineering executives had completed the 360 assessment; providing the researcher with a viable sample population. This study will utilize a non-probability sampling methodology, which is discussed further in the methods chapter. The questions asked in the 360 assessment survey may be found in Appendix A of this study.

Employee engagement index. A section of the employee engagement survey is dedicated to questions that address two aspects of the employee experience: performance and retention. A complete copy of the employee engagement survey may be found in Appendix D of this study. The rest of the survey provides employee responses to

questions that Likert (1961) has linked to organizational performance through empirical research. Likert's research is further supported by Katz and Kahn (1966), who identify similar relationships between organizational character and performance. In addition to historical research on management theory, there is also high degree of alignment between Company Xs survey questions and the research of more modern organizational theorist (Hamel, 2007; Ouchi, 1981).

Organizational character is defined by and through a company's management systems. Culture is outcome of an organizations management paradigm which is a function of an organizations systemic practice. Management theory is the shared domain of modern researchers seeking to understand the relationship between environment, productivity, and leadership practices. Max Weber's research brought organizational theory and a focus on group dynamics into the foreground in the early part of the twentieth century. He was followed by Mayo and Likert who shifted the focus on productivity in the 1930s. The work of Weber and Mayo gave way to the work of Frederick Herzberg in the late 50s. The 1960s brought about a changing focus on informal organization. Fiedler developed a new management theory that emerged in the last 60s. His contingency theory, which focused on leadership effectiveness, represented representing a minor reorientation of the work of Likert and Mayo, emphasizing the relationship of leader attitudes as opposed to environmental factors in influencing group performance (Likert, 1961; Mayo, 1933).

Twenty-first century literature hit a peak in the 60s after which Hamel (2007) suggests we may have limited further innovation as a result of our DNA; prisoners of the paradigms established and supported by the bureaucratic class. Changing these paradigms

is counter to our thinking and way of being. The story is not all bad; some progress has been made over the past decade under the auspice of productivity. The transition feels more like a return to the question Mayo and his successors sought to answer…what variables within the environment enable workforce productivity? The answer is situated in the evolution of employee engagement and attitudes about the employee experience that influence employee productivity. Further, the employee experience cannot be separated from the organizational culture and organizational practices sustained by leadership behavior.

Research Questions

Given the results of the 360 leadership assessment, employee engagement survey data and organizational quality measures, this study aims to answer the following questions:

1. Does a relationship exist between leadership competency ratings and employee engagement survey scores?
2. Does a relationship exist between employee engagement survey scores and quality performance measures?
3. Does a relationship exist between the variance in supervisor and subordinate 360 assessment ratings and employee engagement survey scores?
4. Does the annual performance assessment process at Company X reward leadership competencies?

Significance of the Study

Given the perceived relationship between leadership competencies, employee engagement, and organizational performance, there is a need to understand which

competencies maximize employee engagement. If leadership competencies that engender employee commitment are identified, developed, and reinforced, organizations will have more opportunities to thrive –and not just survive – in today's challenging business environment. Company X has a visionary business strategy with an exciting and innovative product portfolio aligned to the future of communication and collaboration. One threat to the company's success is its ability to engender employee commitment through innovative management practices. This study offers Company X an effective starting point for understanding how to build and reward management practices and leadership behavior that engage the workforce more effectively.

Definition of Terms

The following terms appear throughout this study; definitions are provided below for quick reference. For the purposes of this study, these terms will be defined thusly:

1. Business Unit: A business unit is an organizing structure within Company X. A business unit is inclusive of one or more products or product families.
2. Citizenship Behavior: Citizenship behavior is a term used in the later part of the twentieth century to describe the demonstrable behavior associated with employee motivation and commitment in the workplace. In the literature, citizenship behavior has been positively correlated with organizational performance. Citizenship behavior is synonymous with employee commitment and is manifest in discretionary effort put forth by an employee.
3. Discretionary effort: The literature describes discretionary effort behavior is several ways. Common terms for ways of describing discretionary effort include; voluntary effort or volunteerism and citizenship behavior. However

they are labeled, discretionary behaviors as they share common characteristics expressed through employee contributions that are "not directly or explicitly recognized by the formal reward system" (Organ, 1988, p. 4). Further, citizenship behavior is described as "a matter of personal choice, such that its omission is not generally understood as punishable" (Organ, 1988, p. 4).

4. Employee Commitment: The level of demonstrable commitment an employee shows in the day-to-day. Employee commitment is strongly correlated with employee performance and employee retention.
5. Employee Engagement: For the purposes of this paper, the following definition of employee engagement will be used: "engagement occurs when employees are motivated to help the company succeed (commitment) and know what to do to make it successful (line of sight)" (Watson Wyatt Worldwide, 2007 p. 3).
6. End-result Variables: Outcome variables including production output, revenue from sales, operational expenses, product quality and revenue growth
7. Variables: Includes employee loyalty, skills, motivations, capacity for effective interactions between supervisors and subordinates, communication, and decision-making allied to risk management, critical thinking, empowerment and accountability.
8. 360 Supervisory and Leadership Assessment: An instrument that measures supervisory and leadership behaviors. 360 terminology is used to identify an

assessment that is not only gathers a supervisor's self-perceptions but also the perceptions of the supervisors up-line managers as well as the behavioral perceptions of the supervisors' subordinates, providing a 360 degree view of the supervisor's behavior in the day-to-day. This comprehensive view allows managers to see where their own perceptions differ from others.

9. Organizational Performance: The ability of an organization to meet its stated objectives. This includes the measures used by the organization to assess progress against its stated objectives.
10. Organizational Theory: Organizational theory shares its heredity with management theory; they both stem from a field of study defined as organization science. Management theory and organizational theory are used interchangeably in this research.

Summary

Company X is a large multinational corporation based in San Jose, California that attained commercial success as the first company to develop and sell routers using multiple network protocols. The company is a $40 billion a year business with a presence in 79 countries. Each of its 68,000 employees reports to one of twelve functional units. Some of Company X's functional units include: marketing, engineering, finance, human resources, legal, manufacturing and sales. The company is not divisionalized, as would be standard practice for a company of its size. The total population of employees in supervisory roles is 7,828; engineering executives represents 5% percent of the total supervisory population.

This study provided a vehicle for evaluating cross-disciplinary data in service of

organizational performance. Employees in supervisory roles have the power to maximize organizational performance through their management practices. This research also offers an effective starting point for thinking about the implications of organizational practices and leadership behavior on employee commitment and organizational performance.

Chapter 2: Literature Review

> …[E]very act of influence on a matter of organizational relevance is in some degree an act of leadership…we consider the essence of organizational leadership to be the influential increment over and above mechanical compliance with the routine directives of the organization (Katz & Kahn, 1966, p. 302).

Overview

Employee engagement is an important concept in organizational systems because increased levels of employee engagement are closely associated with increased levels of workforce commitment and productivity (Likert 1961; Katz & Kahn, 1966). This study sought to gain an understanding of the relationship between leadership strengths and employee engagement. Leadership behaviors can have a profound impact on workforce productivity (associated with quality and quantity of output) and vitality (associated with cohesion, employee morale and engagement) (Kaplan & Kaiser, 2009).

This study also sought to identify any leadership characteristics that may detract from employee commitment goals. Goal pressure is an example of a leadership characteristic that holds the potential for creating a negative impact on employee engagement (Likert, 1961). Likert found that supervisors' placing high degrees of unreasonable pressure on employees resulted in poor organizational performance; a significant inverse relationship was identified between performance and pressure (Likert, 1961).

George Elton Mayo conducted human behavior experiments at the Hawthorne Works (a General Electric Company) in Chicago between 1924 and 1927. Although

Mayo's findings failed to establish a clear connection between lighting conditions and workforce productivity it did produce two noteworthy outcomes (Mayo, 1933):

1. It challenged F.W. Taylor's principles of scientific management and theory of organizations wherein employee motivations were thought to be purely driven by self interest; and
2. It left other researchers wondering about what factors do influence worker output. This curiosity spawned further research on management theory, human relations and the relationship between the organizational environment, productivity, and employee motivation.

Although these studies date back more than 80 years, the general practice of management has changed very little (Hamel, 2007). Grappling with the challenge of why management theory appears to be stuck in a time warp, Hamel proposes that modern society has:

> …reached the end of management—in the sense Francis Fukuyama argues we have reached the end of history. If liberal democracy is the final answer to humankind's long quest for political self-determination, maybe modern management, as it has evolved over the last century, is the final answer to the age-old question of how to most effectively aggregate human effort. (p. 4)

Hamel acknowledges the rapid evolution of management and organizational theory during the first half of the 20th century; he also grapples with the slow rate of change since then, especially given the rapid rate of change in technology, lifestyles, and geopolitics during this time period. Hamel suggests that management breakthroughs require intellectual long jumps; a mental revolution that touches all aspects of the work

experience as well as all those engaged in it. Seeds of this revolution can be found in concepts of employee engagement.

While the moniker is new, employee engagement is not a new concept; the underlying interest in environmental factors and employee productivity date back to the early part of the 20th century (Mayo, 1933). Employee engagement is an expression of employee commitment based on attitudes about the workplace and relationships among and between coworkers and leadership. Mayo understood that the implied contract between employee and employer was changing. Societal changes created expectations about how people should be treated; while researchers sought to explore the impact these changes would have in the context of management and organizations systems. Mayo no doubt inspired researchers such as Argyris (1957) and Likert (1961) who also sought to better understand the management and organization as an organic system. Both researchers discovered a relationship between environment and worker productivity. Despite this knowledge today's employees find themselves working in the modern world under an old-world style of management.

Despite old world management practices organizations are seeking solutions for modern day challenges; challenges that have them searching for any opportunity to bolster organizational performance. The answer, at least in part, is a focus on employee engagement. A focus on employee engagement yields financial benefit for the organization in the form of productivity and innovation. Productivity increases when employees put forth extraordinary effort in service of organizational performance (Gebauer, Lowman, & Gordon, 2008; Towers Perrin, 2008). Extraordinary or discretionary effort is positively associated with measures of organizational performance.

Podsakoff, MacKenzie, Paine, and Bachrach (2000) and Oplatka (2006) also address the relationship between discretionary effort and organization performance outcomes in their research on citizenship behavior. Podsakoff et al. (2000) and Oplatka (2006) investigated employee motivation, and the results of their research confirm Mayo's (1933) contention that debunks the mythos of self-interest as an employee's primary motivation. The results of these researchers confirmed that employees engage in helping behaviors –actions taken to assist others or help achieve the company's goals that are not a part of the person's formal role obligation – when the employees share a sense of community and cooperation (Oplatka, 2006; Podsakoff et al., 2000). While the literature on citizenship behavior does not share a common nomenclature with employee engagement is does share a common focus on employee contribution above and beyond role expectation. Extraordinary effort put forth by employees –effort that is above and beyond the normal expectations of the job—is identified in employee engagement literature as discretionary effort.

Between 2006 and 2009, several large consulting and professional research firms (Towers Perrin, 2008; Blessing White, 2008; and Gallup Management Journal, 2006) conducted large-scale studies on employee engagement. Based on their research, Towers Perrin (Administrator, 2009) identified the following Top 10 Drivers of Employee Engagement:

1. Senior management sincerely interested in employee well-being;
2. Employees have opportunities to improve skills and capabilities;
3. Organization's reputation for social responsibility;
4. Employees have input in decision making processes;

5. Quick resolution of customer concerns;
6. Setting of high personal standards;
7. Excellent career advancement opportunities;
8. Challenging work assignments that broaden skills;
9. Good relationships with supervisors; and
10. Organization encourages innovative thinking.

Management Theory

A theory of management shapes and is shaped by societal norms (Drucker, 1974). Contained within a society of employees is an expectation of what the employees are looking for in their work experience beyond monetary compensation; the data show employees are seeking a shared sense of purpose, community and connection (Katz, 1964; Katz & Kahn, 1966; Mayo, 1933; Weber, Henderson, & Parsons, 1947). How employees feel about their work environment significantly influences their performance; a positive association with the work environment results in employee motivation and commitment to achieve (Katz, 1964; Likert, 1961; Mayo, 1933). Further, Likert (1961) and his contemporary Drucker (1974) identified several critical supervisory behaviors that proved to be important variables in influencing organizational performance: (a) pressure, (b) supervisory practices, (c) communication, and (d) feedback. Likert (1961) found that supervisors' placing high degrees of unreasonable pressure on employees resulted in poor organizational performance; a significant inverse relationship was identified between performance and pressure (The Booth Company, 2007; Likert, 1961).

McGregor formulated two models of management Theory X and Theory Y. Theory X stands in stark contrast to the concepts associated with the future of

management (Gebauer et al., 2008; McGregor, 2002). Maslow, Stephens, & Heil (1998) believed McGregor's management theory to be assumptions we hold about people's motivation. Theory X is grounded in the underlying assumption that people inherently dislike work and only through coercive means one can expect adequate effort from the average person. Further, Theory X holds that the average person is without ambition and holds no aspirations to achieve greatness (Maslow et al., 1998).

In stark contrast to the assumptions contained within Theory X is Theory Y, Theory Y acknowledges people as assets; a revolutionary perspective when first introduced by McGregor in 1960 (McGregor, 2002; McGregor & Cutcher-Gershenfeld, 2006). Theory Y holds that "work is as natural and desired as rest or play" (Maslow et al., 1998, p. 69). Theory Y assumes that the average person is motivated and will show initiative and seek responsibility, not out of fear but out of goal motivation and a desire for self-actualization. McGregor believed that the average person possesses a significant albeit untapped capacity for creativity and integrity.

Theory Z was introduced by Ouchi in 1981 as an outcome of his work studying the management practices of Japanese companies. Ouchi went about the process of separating the culturally specific principles from those he believed to be universally applicable to any economic organization. Ouchi identified three foundational characteristics of Theory Z, trust, subtlety, and intimacy; without these, Ouchi says, "no social being can be successful" (Ouchi, 1981, p. xii).

Distinct features characterize "Z" organizations, these features include, long-term employment, a high number of specialized skills that are typically learned by doing, and career paths are typically marked by a lot of cross-organizational movement (Ouchi,

1981). The cooperative intent of the organization is marked by trust and shared values. Further, in a type "Z" organization decisions-making processes are consensual and participative. With that said, the responsibility for decision-making still resides with one person. Information does not flow down but across "Z" organizations with employees actively participate in shaping important company decisions. Relationships in "Z" companies also tend to be informal in nature and focused on the whole person unencumbered by job level. Egalitarianism is a key value of "Z" companies.

While Theory X and Theory Y represent opposing perspectives about human motivation. Theory Y and Theory Z represent complimentary perspectives about human motivation and a philosophy of business. Ouchi's philosophy of business is not only a management theory but an organizational system theory. Ouchi's description of "Z" companies include environmental characteristics that are similarly identified by both Gebauer et al. (2008) and Hamel (2007) in their description of the conditions associated with highly engaged workers, and in organizational systems that unleash the capacity of the workforce through a process of shared decision-making and distributed leadership.

Ouchi (1981) also talks about several fundamental differences between "Z" companies and what he refers to as "A" companies. The leadership characteristics at Company X, like many US organizations, including those characteristic of "A" companies work in organizational systems that place a higher premium on performance than they do on (a) how work is accomplished and (b) sustainable business practices. The over emphasis on short-term performance creates an imbalance that detracts from the conditions needed to maximize employee commitment and satisfaction (Ouchi, 1981).

Organizational System Theory

Organizational theory is both expressed and implied in the literature of modern researchers. Theory, according to Webster's Illustrated Encyclopedic Dictionary (Ellis, Innes, Jost, & Marciano, 1990) is "systematically organized knowledge applicable in a relatively wide variety of circumstances; especially, a system of assumptions, accepted principles, and rules or procedures devised to analyze, predict, or otherwise explain the nature or behavior of a given set of phenomena" (p. 1713).

Organizational system theory is put forth in the early research of Likert (1961) and Drucker (1974) as well as the more recent applied research of Hamel (2007), Towers Perrin (2008), Watson Wyatt Worldwide (2007, 2008), and Gebauer et al. (2008). Management theory, leadership theory and measures of employee engagement all share the perception of the organization as a conceptual living organism, expressed as variables and conditions within which the organization as a system is optimized and profitability as an outcome is maximized. Within the organization leadership practices work to promote or detract from a positive impact on organizational performance. Leadership behaviors, visible in the management practices of the organization span from one end of the continuum (as a necessary evil in the production process) to the other (as a co-participant in organizing, orchestrating, and influencing performance). While employee engagement examines the environment within which the employee relationship capitalizes on intellectual and emotional horsepower of employees it also puts forth a statement about the environmental conditions within which the performance of an organizational system is optimized. Hamel (2007) articulates this viewpoint thusly:

> In a democracy, the pace of change is only tangentially on the vision and moral courage of those in power. Social campaigners, industry groups, think tanks, and ordinary citizens all have the chance to shape the legislative agenda and influence political priorities. (p. 168)

What is true of government can be extended conceptually to any organizational system. The distribution of the power and decision-making structure represents a new theory of organization based on a "wholly different set of principles—about the capabilities of its employees and the responsibilities of its leaders" (Hamel, 2007, p. 28). These principles are not evolutionary but revolutionary, representing a fundamental mindset shift that changes the way in which organizations operate (Hamel, 2007). A mindset shift found in the organizations supervisory practices, communication and interaction process, as well as in the feedback loops that enable adjustments in work practices and processes.

Supervisory practices. An outcome of Likert's (1961) study examining the relationship between supervisory practices and organizational outcomes identified general supervision as an important variable in organizational performance. General supervision is an environment where employees feel they have the freedom they need to do the job. Embedded within general supervisory methods are group interactions where employees ideas become a part of the decision-making process that shape the way in which work is accomplished (Drucker, 1974). Acting on employee recommendations – the ability to influence work practices – is cited in studies focused on management practices as well as employee engagement literature as a source of favorable employee attitudes (Drucker, 1974; Gebauer et al., 2008; Likert, 1961; Watson Wyatt Worldwide, 2007). Likert (1961) asserts that job related attitudes include of attitudes "toward the

work itself, supervision, working conditions, pay, promotion, etc." (p. 27). Employee attitudes are crucial elements of high-performing organizations; when the goals of the employee are consistent with those of the organization, organizational performance substantially.

In addition to general supervision several other factors proved to be important variables in creating a favorable work environment and positive employee attitudes. These factors include supervisory behaviors marked by personal connection and caring. In addition to personal connection and caring, supervisors must also possess the ability to communicate openly and honestly (Hamel, 2007; Likert, 1961).

The potential benefits attainable when an organization's communication system is optimized come with an underlying expectation of supervisory practices that not only condone but also support cooperative working relationships in a participatory decision-making work framework. Bass and Riggio (2006) describe an environment in which shared-decision making facilitates the emergence of a collectivistic society. This same shared-decision framework is supported by a communication system present in the managerial practices of the organization that supports interaction across all levels of the business (Hamel, 2007).

Communication. Effective communication is not measured in quantity but rather by the quality and interactive nature of communication between supervisors and subordinates. Employees believe that quality communication allows them to feel: (a) like the manager is listening to them; (b) that their feedback is being incorporated into work practices; and (c) that they have a quality relationship with their supervisor (Likert, 1961). Likert emphasizes the importance of communication as a variable in the

workplace. He describes a communication system in which workers share important information efficiently, enabling effective decision-making within the team, minimizing waste, and maximizing efficiency. Communication is also identified as a vehicle for building trust, open communication, information sharing, and a culture of empowerment; these qualities work together in an integrative way to optimize organizational performance (Gebauer et al., 2008; Katz, 1964).

Feedback. The reviewed literature addressed two different kinds of feedback provided to employees: feedback measuring the employee's work against expected standards of performance, and feedback associated with meeting quality standards in the production process. Performance feedback results from the interaction between supervisor and subordinate, whereas feedback associated with the production process is predominately associated with work group vs. individual communication processes (Likert, 1961).

Organizational performance is typically measured in terms of productivity (volume of output or speed of service), rate of innovation (the speed at which an organization delivers new products to market), and quality (Hamel, 2007). Drucker (1974) identifies critical aspects of effectively communicating both personal and organizational performance feedback thusly: "It must be timely. It must be relevant. It must be operational. [Above all it] must focus on the job" (p. 269).

Summary of Management Systems as a Source of Competitive Advantage

Likert (1961) understood the importance of supervisory characteristics as a variable in organizational goal attainment. Hamel (2007) takes management theory forward, examining not only supervisory characteristics but also deeply deep-rooted ideas

about what it means to be in a supervisory role. Although organizations are now structurally flatter the management rituals that govern corporate life have changed little. As today's companies seek to design organizational models that keep pace with the rate of innovation, the time has come for management models to undergo a process of creative destruction – a term used in economic models to connote a period of transformation that includes radical innovation born out of the destruction of old paradigms (Hamel, 2007). Hamel proposes that management innovation is the ultimate source of competitive advantage for today's companies.

Although the potential for innovation exists across a broad spectrum of organizational attributes, only management innovation promises to yield sustainable competitive advantage. While other sources of innovation yield competitive advantage Hamel proposes these advantages are comparatively short lived because they are much easier for competitors to replicate. An example of management driven sustainable competitive advantage can be found at Toyota. Toyota success has left U.S. automakers scratching their heads for more than 20 years as Toyota has consistently outpaced its U.S. competition (Hamel, 2007).

Hamel (2007) conceptualizes innovation as a pyramidal structure; at the base of the pyramid sits (a) operation innovation, followed by (b) product and service innovation and (c) strategic innovation. At the very top of the pyramid lies (d) management innovation. While innovation takes place across Hamel's pyramid the lower tiers are more easily replicable by competitors. Companies must be operationally excellent in order to effectively compete in the marketplace, and operational innovation is the most easily replicable by competitors. Companies like Japanese automaker Toyota have

operationalized practices that U.S. automakers still cannot replicate, despite twenty years of trying. What U.S. automakers attributed to operational innovation in the pursuit of operational excellence was based on a "wholly different set of principles—about the capabilities of its employees and the responsibilities of its leaders" (Hamel, 2007, p. 28). Although Toyota does possess operational excellence, it is management innovation that truly fuels its innovative practices.

U.S. businesses tend to focus on "better, faster, cheaper" placing emphasis on lower order innovation "operational innovation"; a focus that fails to address the type of mindset shifts needed for businesses to attain sustainable competitive advantage (Hamel, 2007). Hamel attributes this challenge not to the dim-witted nature of executives, but the not so intuitive nature of change and innovation required to capitalize on the capability of employees through management innovation. The rate of change in business is pushing the need for business agility that comes by and through innovation in management practices. What it means to effectively lead businesses into the future has changed; the accelerated nature of change requires organizations to push up the innovation stack in an effort to gain sustainable advantage. To this end, Hamel argues, "Companies miss the future when they mistake the temporary for the timeless" (p. 43). "Better, faster, cheaper" does not optimize the business opportunity it only optimizes the production process.

Change in a business environment, significant change, is historically born out of crisis; it is usually both episodic[2] and programmatic[3], and is typically resolved through tightly scripted actions by top executives that subsequently cascade down into the

[2] An event that requires a business to change in order to remain viable within its given field

[3] Programmatic changes are inclusive of business projects or initiatives created in response to alterations in business practices associated with an organizations annual business planning process.

organization (Hamel, 2007). Rarely are changes opportunity-led by an organization's intrinsic capacity to adapt in a way that capitalizes on market opportunity; changes that are born out of an organizational system capable of trauma-free renewal. The type of trauma-free renewal Hamel references can only be generated when employees are repositioned in the organizational system as a source, not the recipient, of organizational innovation. The impact of repositioning of the employee in the workplace can be found in measures and outcomes of employee engagement. Hamel cites three challenges associated mainstream management practices:

1. Too much management, too little freedom.
2. Too much hierarchy, too little community
3. Too much exhortation, too little purpose.

In order to deal with the challenges in mainstream management practices Hamel argues that significant changes must be made to the management paradigm and in doing so challenges what it means to be a leader.

Leadership Styles and Theories

Leadership styles are a way of being based on a personal set of beliefs about how best to influence production. Leadership practices and the organizational systems they foster shape a company's culture. Leadership practices are institutionalized in the culture of organizational systems and management practices (Kotter, 1996). Many companies today are run by leaders with a transactional approach to leadership. Although transactional leadership can be both an active and effective form of leadership, transactional leadership fails to capitalize on discretionary effort that comes from engaging an employee fully. Leadership is the backbone of an organizational system.

Although one may define the term "leadership" in many ways, Northouse (2004) subscribes to the idea that leadership is not limited to individuals with positional power in an organization. Mayo (1933), Likert (1961), Drucker (1974), Ouchi (1981), Northouse (2004), Gebauer et al. (2008), and Hamel (2007) are all philosophically aligned to the tenets of distributed leadership –group dynamics created by inclusive management practices—where leaders are not always above followers but frequently work side-by-side. Leadership models typically focus on the characteristics of leaders with an underlying perspective that leadership is something that is a one-to-many experience; the idea that leadership is many-to-many experience within an organizational system is a relatively new concept. Evidence that concepts of distributed leadership are not yet main stream can be found in the outcome of the Towers Perrin (2008) employee engagement survey results; it can also found in Gebauer et al.'s (2008) writing focused on the differentiated performance of a small group of companies focused on employee engagement. The concept of leadership as a pervasive within an organizational system can be found in several leadership models; transformational leadership, Bass and Riggio (2006); distributed leadership, Spillane (2006); situational leadership, Blanchard (2007) and leader member exchange theory (LMX), Graen and Graen (2006) all possess requisite philosophical underpinnings that support leadership as a sphere of influence that can be inclusive of the broader workforce in a way that optimizes organizational outcomes.

Bass and Riggio (2006) describe multiple models of leadership in their full range leadership model. In a 1985 study conducted by Bass and Seltzer (1990) they describe several types of leadership behaviors that inspire performance beyond expectation. The

leadership behaviors described and measured in the study included charisma, individualized consideration, and intellectual stimulation, all of which they define as transformational leadership characteristics. Bass and Riggio (2006) adapted these factors slightly when they addressed this subject 16 years later, associating the following core attributes with transformational leadership: individualized consideration, intellectual stimulation, inspirational motivation and idealized influence. In Bass and Riggio's model charisma is not abandoned but encompassed within inspirational motivation.

Although transformational leadership behaviors contribute to employee satisfaction, the data show that transformational leadership alone is not correlated with extra effort on the part of employees. Bass and Seltzer (1990) describe this effect in the following way: "the relation of transformational leadership to subordinate's extra effort is a dyadic rather than a group effect" (p. 693). In other words, behaviors attributable to transformational leadership have a positive effect on both the individual as well as the team. Transformational leadership creates team spirit via empowering leader behaviors that bring about a sense of self-efficacy and intrinsic motivation among employees, in addition to creating statistically significant relationships between shared decision-making and cohesive team building (Bass & Riggio, 2006). Fundamental differences exist between two forms of leadership: *transactional* and *transformational* described in Bass and Riggio's depiction of the full range of leadership. Transactional leadership operates on the basis of an exchange system and the promise of reward (or avoidance of reprisal), whereas transformational leadership relies on the leader's ability to elevate the interest of followers through team spirit and a shared sense of purpose. Transformational leadership behaviors inspire followers to subjugate self-interest in support of the team and

organizational cause (Bass & Seltzer, 1990). Transformational leadership is considered by Bass and Seltzer to be the most active and effective form of leadership The full range of leadership styles evaluated by Bass and Riggio (2006) includes: (a) laissez-faire leadership, (b) two forms of management-by-exception (passive and active), (c) contingent reward, and (d) the 4 I's.

Laissez-faire. Laissez-faire leadership is considered the most passive and least effective form within Bass and Riggio's (2006) full range of leadership. The defining characteristics of this style lie in the absence of leadership activities: the avoidance of responsibility by a person in a position of power. The term laissez-faire is intended to describe an unwillingness to engage in the responsibilities of the leading through avoidance tactics. Laissez-faire would not be considered a leadership strategy but a failure of the leader to engage in the responsibilities of leading.

Management-by-exception. Management-by-exception places its focus on monitoring employee work against a standard performance expectation or process. According to Bass and Riggio (2006), management-by-exception can be separated into two categories: active and passive. Active management-by-exception is only slightly more effective than passive management-by-exception: the "passive" leader engages only after a subordinate has deviated from normative practice, whereas the "active" leader proactively monitors performance against standard.

Contingent reward. Contingent reward is considered both an active and effective form of leadership, although still not as effective as transformational leadership. Contingent reward is considered a transactional form of leadership. Employee performance that meets clearly articulated goals yields monetary or otherwise agreed-

upon rewards; the reward is contingent upon goal attainment (Bass & Riggio, 2006). The line between contingent reward and transformational leadership is crossed when the reward transitions from one that yields material benefit to one that is psychological in nature (Avolio & Bass, 2002; Bass & Riggio, 2006).

Other leadership models. Situational leadership, distributed leadership, and leader member exchange (LMX) are covered in this section. Each of these alternative perspectives on leadership possesses the characteristics and requisite underpinnings to support a new theory of organizational systems, none necessarily better than the other.

Blanchard, situational leadership model in its broadest sense is about one's ability unleash the potential of others: the leadership model, LMX theory, looks at leadership through a unique lens, one that "conceptualizes leadership as an interpersonal, roles making process rather than as individual behavior" (Graen & Graen, 2006, p. 16). LMX is also known as vertical dyad linkage theory and social exchange theory (Graen & Graen, 2006; Thibaut & Kelley, 1959). The theory of LMX is more conceptually aligned to sociology and organizational theory than typical models of leadership. Graen and Graen (2006) embrace the idea that people seek out patterns of differentiated influence relationships present in the interactions of individuals and teams in the course of the day-to-day work experience. In addition to LMX, Graen and Graen outline a secondary leadership model that describes leadership within a peer-to-peer setting. Team-member exchange theory (TMX) is a model that describes peer relationships wherein a reciprocal influence patterns represents a form of shared leadership present in a team or group setting. Graen and Graen do not conceive of leadership within the context of organizational structure but rather within the context of work process.

Spillane (2006) describes the key elements of distributed leadership thusly: "Individual[s] who work together learn to trust one another and appreciate one another's strengths and weaknesses" (p. 46). As a result, more intimate working relationship develop that contribute to the distribution of leadership among individuals (Ouchi, 1981). Spillane (2006) also provides examples of spontaneous or impromptu collaboration motivated by the need to solve a particular business challenge; these collaborative groups disband once the problem has been resolved. Graen and Graen (2006) describe collaborative teams similarly, as endogenous structures that emerge and disseminate dynamically, the effects of are a more agility and flexible organization.

Spillane's (2006) distributed leadership model and Graen and Graen's (2006) LMX differ from other leadership models in the many to many approach to leadership.

Company X's leadership model. The organizing construct for the leadership model utilized by Company X is behaviorally based. Company X's leadership model, C-LEAD, is organized by five key themes: (a) collaborate, (b) learn, (c) execute, (d) accelerate, and (e) disrupt. The C-LEAD Model may be found in the Appendix B of this study. The C-LEAD model is contains twelve competencies that parallel several of the models represented in this research; Bass and Riggio's (2006) and Blanchard's (2007) situational leadership. Further, these same characteristics are measured by a comprehensive 360 leadership assessment survey.

The 360 assessment measures the perceptions of the supervisor, his/her subordinates, and up-line supervisors on a five-point scale to determine the frequency with which the supervisor demonstrates behaviors aligned with the C-LEAD model. The C-LEAD 360 assessment survey was co-developed with The Booth Company (2007).

Booth's standardized model and measurement instrument has been vetted over a 30 year period with more than 200 million item responses, maximizing validity and reliability of the data it generates. More details of the C-LEAD model may be found in Appendices A and B.

In parallel with Company Xs leadership model, the company has taken several steps in the past three years to alter its management practices. These changes correspond to those described by Graen and Graen (2006) as "flexible leadership structures" (p. 23). Company X's has deployed a strategy for capitalizing on the concepts of flexible structures through the creation of a boards and councils. Boards and councils are made up of cross-business unit teams that are formulated by leaders throughout the company to solve a business problem or organize around a potential business opportunity. Once a business challenge or opportunity has been solved these dynamic team dissolve and move on to the next opportunity. The work of the boards and teams are incremental to an employee's day to day responsibilities.

Company X's leadership model does not live in isolation from its organizational model and practices; they co-exist in support of one another. The organizational model provides a dynamic construct around which the business organizes its day to day activities and business challenges while the leadership model provides the mechanism for identifying, developing, and rewarding the behaviors needed to drive the evolution of the business and organizational model. The boards and councils pull more employees into the decision-making process each year; over the past three years participation has gone from 150 in year one to 500 in the current year with a challenge to grow to 3,100 by the end of fiscal year 2010.

Employee Satisfaction and Engagement

A lack of employee engagement means that the vast majority of employees give a great deal less of themselves than they could (Hamel, 2007; Towers Perrin, 2008). Hamel (2007) cites two Tower Perrin studies: a 2005 study of 86,000 employees in medium to large-size companies in 16 countries, and a similar study conducted in 2009. The outcome of both studies shows a clear and persistent lack of employee engagement. Although the Towers Perrin data is interesting, what is more interesting is the apparent acceptance of the status quo and perceived complacency of management.

Hamel (2007) proposes that human capability can be arranged in a hierarchy. The lowest of this hierarchy is obedience: the ability to take and follow direction, which requires little to no creativity and by extension, offers nothing in terms of competitive advantage[4] for an organization. The next rung up the ladder is diligence[5]; with diligence comes accountability, but little else. Next above diligence are knowledge and intellect. Beyond intellect is initiative, which is present when an employee no longer needs to be told what to do. Initiative is followed by creativity. Lastly, the top of the hierarchy is occupied by passion. The contribution of this employee is marked by passion, creativity, and initiative of its employees disproportionate to the other human capabilities in the hierarchy. High levels of employee engagement are characterized by the emotional and rational commitment of the employee. The emotional commitment is illustrated in Hamel's definition of passion (Towers Perrin, 2008).

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[4] Competitive advantage is a term used to describe the advantage one company has over another in the market. The advantage is typically based on product differentiation or same value for lesser cost.

[5] Diligence, as Hamel describes it, connotes a worker that can be relied upon to make a genuine effort to do a good job but is not committed beyond the contractual work agreement.

The combination of commitment and alignment are the conditions for determining employee engagement and by extension commitment. Although drivers of employee engagement vary slightly from region to region companies with high employee engagement scores consistently outperform those with low levels of employee engagement (Watson Wyatt Worldwide, 2000). Employee commitment studies have been done predominately by professional research firms, although there are a growing number of professional researchers conducting applied research studies in this relatively new and growing field of study. In a 2008 Towers Perrin identified the top five engagement drivers across generations and geographies: "(1) senior management sincerely interested in employee well-being, (2) improved my skills and capabilities over last year, (3) organization's reputation for social responsibility, (4) input into decision-making in my department, and (5) organization quickly resolves customer concerns" (p. 18).

The results of the Towers Perrin (2008) study closely overlap with Hamel's (2007) hypothesis about the need for the destruction of old management paradigms. Taken from the Towers Perrin study, Figure 1 exemplifies the marked difference in employee perception when he or she is engaged. The perceptible mindset shift occurred as a result of a paradigm shift that occurred in work experience of organizations that have achieved high levels of employee engagement (Hamel, 2007). The paradigm shift is the employees' perception about their ability to impact organizational performance by way of their day-to-day actions. This belief produces increases in both employee engagement and employee performance. Figure 1 reveals the psychological impact engagement has on employee perceptions about their ability to contribute to organizational outcomes.

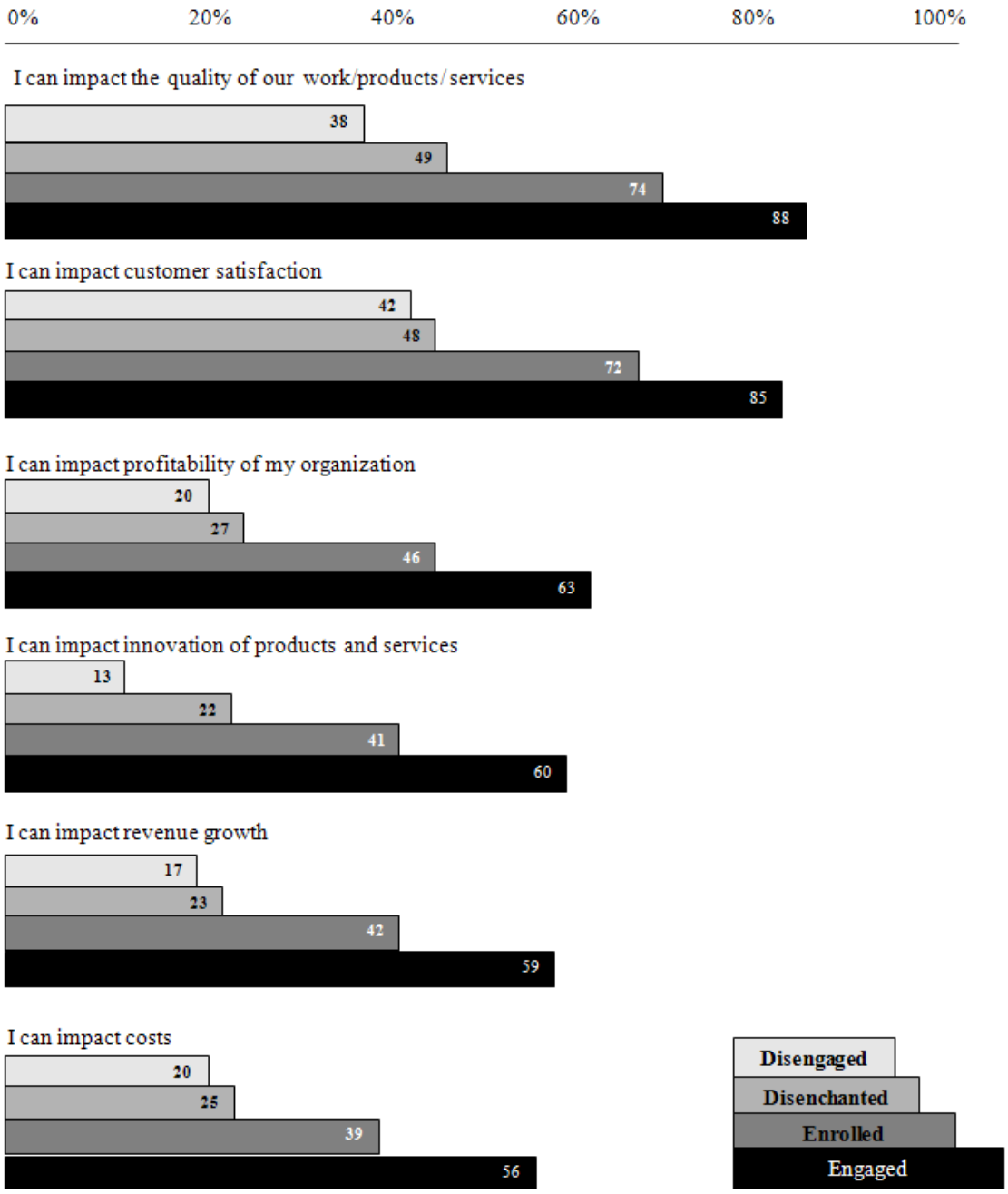

Figure 1. How engagement affects individual performance: Percentage of respondents agreeing with statement. Adapted with permission from *Closing the engagement gap: A road map for driving superior business performance* by Towers Perrin Incorporated, 2008, p. 6. Copyright 2008 by Towers Watson. Reprinted with permission.

All sources of employee engagement literature used in this study agree on one thing, disengaged workers are still punching the clock and in doing so act as saboteurs minimizing the impact of passionate engaged employees (Colan, 2009; Haudan, 2008;

Swindall, 2007). The problem is not inconsequential; Colan (2009) cites a Gallup survey that reports "seventy-four percent of employees are either indifferent to their work or actively disengaged" (p. 3). A more optimistic view is found in Towers Perrin's 2008 study. The Towers Perrin global study reports forty percent of the employee population was identified as either disenchanted or disengaged. Despite the differing percentages the numbers present a compelling case for rethinking operational practices. The loss of capacity on the whole is staggering as these employees are not performance anywhere near their full potential (Towers Perrin, 2008).

The business case for proactively driving engagement in organizations continues to mount; engaged employees drive share holder value (Colan, 2009; Gebauer et al., 2008). The industry segment is seemingly inconsequential as companies such as Walt Disney, General Electric, and Molson Coors Brewing Company all report strong corollary relationships between engagement and value creation for the company (Colan, 2009; Gebauer et al., 2008; Swindall, 2007). A part of the answer can be found in the need for changing management practices. The Towers Perrin study (2008) provides perspective on leadership characteristics that drive employee engagement and contrasts those with traditional leadership characteristics. The juxtaposition is seen by Tower Perrin –consistent with Hamel's view –as the gap that exists between current and future leadership practices. The comparison in Figure 2 represents the gap between a traditional view of leadership characteristics and those needed to foster employee engagement.

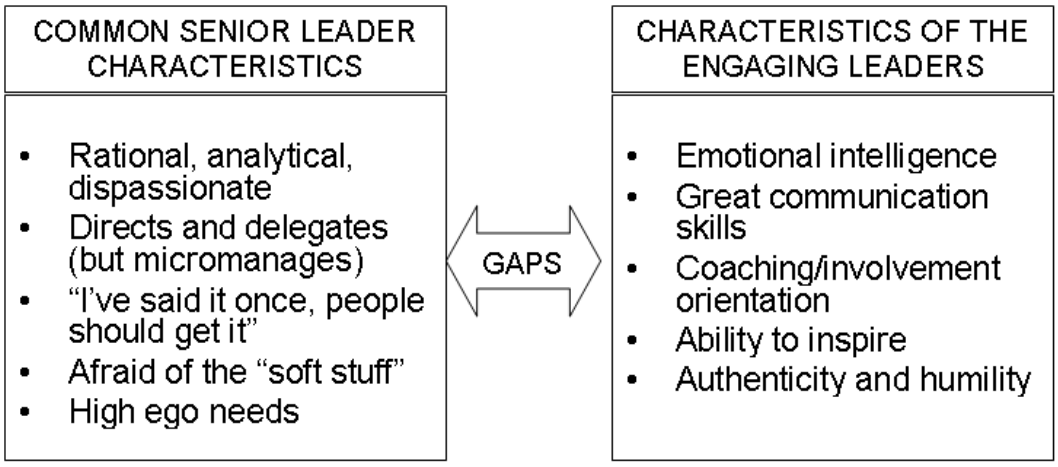

Figure 2. The "ambidextrous" leader. Adapted with permission from *Closing the engagement gap: A road map for driving superior business performance* by Towers Perrin, 2008, p. 11. Copyright 2008 by Towers Perrin.

Gebauer et al. (2008) conducted a study of eight companies that have all achieved high levels of employee engagement; the authors called this group of companies the engaging eight. The engaging eight represent a diverse group of companies with respect to such factors as industries, size, and geographic footprint. This group of companies all has an explicit focus on people as a source of competitive advantage, as Dave Cote, Honeywell's CEO put it, "People…are the ultimate differentiator" (Gebauer et al., 2008, p. 25). The companies represented in the engaging eight have employee engagement scores that range from a low of 83% to a high of 95%: numbers that stand in stark contrast to the normative data in the Gallup and Towers Perrin studies (Colan, 2009; Gebauer et al., 2008; Towers Perrin, 2008)

Motivation Theory

Human motivation manifests itself in goal-directed behavior, which is characterized by affective association and anticipatory responses based on past experiences (McClelland, 1955). According to McClelland, all motivations are learned.

Motivation theory provides the connection in the interplay between employee engagement, leadership, and management theory, since it is human motivation that leads to satisfaction or dissatisfaction in the workplace.

A person's psychogenic needs are derived from their primary needs. Out of all human needs, psychogenic needs are the most directly related to leadership behaviors and employee performance. Psychogenic drives fall into multiple categories, including: (a) achievement and recognition; (b) human power exerted, resisted or yielded to; (c) defense of status; and (d) affection between people (McClelland, 1955). Murray also identifies the need for affiliation, "to form friendships and associations. To co-operate and converse [interact] sociably with others. To join groups" (McClelland, 1955, p. 64). In addition to the four categories named above, Murray (as cited in McClelland, 1955) adds a category related to social life, which he defines as the need to ask and tell. These needs serve the purpose of satisfying curiosity and allowing the acquisition of knowledge through interactive dialogue as well as expository behavior including interpretation and explanation (McClelland, 1955). Not only are a person's psychogenic needs evident in some of the leadership models within this study, in more generalized terms these needs also appear in dimensions of employee engagement.

Summary

All of the employee engagement studies referenced in this research have established positive correlation between high employee engagement scores and financial performance measures such as operating income and earnings per share. Further, research has shown companies with low levels of employee engagement "saw operating income

drop more than 32 percent and earnings per share decline 11 percent" (Gebauer et al., 2008, p. 8).

In contrast to other literature on employee engagement Colan (2009) proposes "When [an employee's] basic human needs are fulfilled, you can achieve full engagement with a simple but powerful formula: When my needs are fulfilled, I am engaged and I perform at the peak of my ability" (p. 13). Motivation theory would suggest that is only partially true, while an employee's basic human needs must be met, engagement goes further than basic human needs. Limiting the focus to basic human needs is still playing at the bottom of the pyramid associated with mans physiological needs (Hamel, 2007; Maslow, 1970). The goal of engaging employees goes well beyond meeting a person's basic human needs; employee engagement is more conceptually aligned to self-actualization and maximizing a person's potential.

Leadership behaviors, transformative behaviors, possess the ability to excite and arouse human emotion. Emotional connection comes from the ability of the leader to inspire; inspiration is a source of motivation that perpetuates pride and confidence. Confidence is when an employee believes that have the ability to impact performance variables (Gebauer et al., 2008). Strategic competitive advantage is only possible when the hearts and minds of the workforce believe they can make a difference and are passionate and confident in their ability to do so (Gebauer et al., 2008; Hamel, 2007).

The characteristics that consistently emerge in the shared domain of leadership and employee engagement are the characteristics that foster an emotional and intellectual connection between employees including employees in supervisory positions. New models of leadership will not only need to focus on leadership behaviors but leadership

practices that embrace a new paradigm; one that repositions the leader employee relationship (Hamel, 2007; Spillane, 2006).

Likert (1961) drew several general conclusions about the interdependency between supervisory and leadership practices, employee satisfaction, human motivation, and organizational performance:

> The data show the great importance of the quality of leadership. For every criterion, such as productivity, absence, attitudes, and promotability of the supervisor, the same basic patterns of supervision yielded the best results. Supervision and the general style of leadership throughout the organization are usually much more important in influencing results than such general factors as attitudes toward the company and interest in the job itself. (p. 25)

The data show the organizational benefit of increased levels of employee engagement; this study sought to identify the relationship between leadership behaviors and employee engagement in an effort to maximize employee commitment and engagement at Company X.

Chapter 3: Research Methods

Overview

This study was designed to identify relationships between leadership competencies, employee engagement scores, and measures of productivity and quality. Leadership competencies were assessed using Company X supervisory and leadership 360 survey assessment processes, which are linked to supervisory learning and development. Company X has already gathered the 360 assessment data that will be used in this study.

Company X also gathered data about employee engagement as a part of its normal biennial business process earlier this calendar year. Their employee engagement survey captures employee sentiment and perceptions aligned to variables similar to those identified by Likert (1961): communication, collaboration, and a positive association with environmental factors such as personal connection, respect and belonging. These key elements within the management system are strongly related to organizational performance outcomes.

An honest broker was used in accordance with the IRB process for pairing data from the 360 assessment outcomes and the results from the employee engagement survey. This data was matched using each supervisor's unique employee identification number to insure data from each of the surveys was matched correctly. An honest broker was utilized for the data pairing process and passed the data to the researcher only after the unique employee identification had been removed from the data set.

A file was passed to the researcher via email in XLSX[6] format (Office Online Microsoft Office Excel, 2010). No information in the data that passes to the researcher by way of the file transfer would lead to the personal identification of any employee in the study consistent with the definition of "anonymous data" provided by the institutional review board, suggesting the study meets the requirements of exempted status as defined in 45 CFR 46.101 (b)(4) (U.S. Department of Health and Human Services, 2009).

Purpose of the Study

The purpose of this study was to examine the relationship between leadership behaviors manifest in supervisory and leadership competencies and the impact of those demonstrable behaviors on employee perceptions associated with engagement. Further, the purpose was to incorporate and examine organizational performance data in order to reveal any relationships that exist between productivity and quality measures and employee engagement scores.

Research Questions

Using the results of the 360 leadership assessment, employee engagement survey data, and productivity and quality measures, this study sought to explore the answers to the following research questions through software analytics:

1. Does a relationship exist between leadership competency ratings and employee engagement survey scores?
2. Does a relationship exist between employee engagement survey scores and quality performance measures?

[6] XLSX is a software program that allows for the easy storage and analysis of data.

3. Does a relationship exist between the variance in supervisor and subordinate 360 assessment ratings and employee engagement survey scores?
4. Does the annual performance assessment process at Company X reward leadership competencies?

Population and Sample

Given the availability of 360 leadership assessment data the target population selected for this study was the engineering executive job family within Company X. The engineering executive job family encompasses a population of 388 senior executives'. The sample is a paired data set that included information from the 360 assessment survey (N=12) as well as employee engagement survey data (N=17) from these executives.

In spite of the limitations it placed on this study's applicability, the researcher has decided to use nonprobability sampling. This sampling methodology eliminated the possibility of evaluating sampling error, and as a result the outcome may not be validly applied to the larger population (Pedhazur & Schmelkin, 1991). Nonprobability sampling was used in order to maximize the sample size; other supervisory job families within Company X were not well represented in the data and it was not feasible to collect additional data purely for research purposes. Further, a random sampling of all job family populations would not have been productive since multiple job families were not represented in the data; lacking sufficient 360 survey assessments and employee engagement survey data to generate a viable data set.

Research Methodology

Two data sets were paired for purposes of relationship analysis within this study. Data was passed to the researcher as a paired data set after being pulled from each of the appropriate systems within Company X and matched by the "honest broker". The IRB uses the term "honest broker" to connote an independent party who plays a role in the research process in order to protect the identity of the participants.

The researcher extracted up line supervisory responses from the data set. Up line supervisory responses are not relevant to the study as the researcher only sought to understand the relationship between supervisor and subordinate, the relationship between supervisor and up line supervisory responses were not a part of the question set and therefore not required data for the study. The researcher then incorporated quality data (measures of organizational performance) into the existing data set using the technology group identification brought forward from the 360 survey assessment data into the paired data set.

Quality performance measures are reported for all Company X technology groups. Technology Groups are an organizing construct for grouping like technologies into a single business unit. The quality data was used to evaluate any relationship between quality and employee engagement survey measures within each of the technology groups represented by the subjects in the study.

The researcher then explored the relationship between the executives' 360 assessment survey responses and their subordinates' responses to determine whether or not insight plays a role in employee engagement outcomes. Stated differently, the researcher sought to ascertain if an inflated view of self, reflected in the variance between

self-reported levels of competency and subordinate perception of competency levels, has a negative impact on employee engagement survey results.

Appropriateness of Correlation and Regression Methodology

Although the concepts of correlation and regression are related they are also separate and distinct from one another (Warren, 1971). The purpose of correlation is to determine "the degree of association between two variables, whereas regression expresses the form of the relationship between specified values of one (the independent) variable and the means of all corresponding values of the second (the dependent) variable" (Warren, 1971). The purpose of this study was to establish correlation between data, without which regression analysis is of little significance. Regression testing is more precise and utilizes analytic techniques that examine predictive associations between the dependent and independent variables. Where the correlation analysis yielded relationships between leadership competencies and employee engagement outcomes or employee engagement outcomes and organizational performance measures the researcher performed regression analysis as a secondary step to evaluate the predictive quality of the relationship.

The data sets used in this study were both numeric and descriptive. Both numeric and descriptive data is used to guide participant responses; examples of the scales are noted in Figures 3 and 4.

The employee engagement survey includes 66 questions in eight sub-categories, uses a five-point scale format. Accordingly, responses are scores ranging from 1 to 5, with 1 representing one end point on the scale (e.g., Strongly Disagree) and 5

representing the other end (e.g., Strongly Agree). Both numeric and descriptive data is used to guide participant responses; an example of the scale is noted in Figure 3.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Figure 3. Rating scale for employee engagement survey.

The rating scale used in the supervisory and leadership 360 survey assessment, which include fifty-one questions in twelve competency categories, is a five point scale format. Accordingly, responses are scores ranging from 1 to 5, with 1 representing one end point on the scale (e.g., Not descriptive of this leader's behavior) and 5 representing the other end (e.g., Very descriptive of this leader's behavior). The scale is anchored at each end and at the center point; an example of the scale is noted in Figure 4.

1	2	3	4	5
Not descriptive of this leader's behavior	-	Somewhat descriptive of this leader's behavior	-	Very descriptive of this leader's behavior

Figure 4. Rating scale for supervisory and leadership 360 assessment.

The rating scale used in Company X's annual performance review cycle of all employees. The employee is given a summative assessment on an annual basis. The assessment rating is typically used to determine base and variable compensation decisions. The data is also used along with other data elements when considering promotability of an employee.

The scales represented in Figures 3, 4, and 5 are typical of measurement methodology used in socio-behavioral research. These rating scales share common characteristics, specifically the person serves at the measurement instrument (Pedhazur & Schmelkin, 1991). Validity and reliability of the rating responses are based on the

"assumption that the human observer is a good instrument of quantitative observation…capable of some degree of precision and some degree of objectivity" (Pedhazur & Schmelkin, 1991, p. 120).

N	E-	E	E+	X
Employee Needs Improvement in one or more Key Performance Area	Employee Performs Lower than Expected – Achieves Lower than Expected Results	Employee is Successful – Rating is reflective of "Core"	Employee is Successful and Performs Higher than Expected – Rating is reflective of Highest 25%	Employee Clearly Performs in an Exceptional Manner – Rating is reflective of highest 10%

Figure 5. Rating scale for employee annual performance review cycle.

The information in each of the paired data came from a separate databases. The surveys that generated each data set were conducted for different purposes. The employee engagement survey was conducted for the purpose of understanding employee perceptions about employee engagement, whereas the leadership assessment was conducted in order to understand perceptions about supervisor and leadership competence in an effort to identify and guide the personal development plans of the supervisors characterized in this study. Productivity and quality data associated with organizational performance measures from the supervisors' business unit was also added to the paired data. The array of data had rows and columns representing the supervisor and associated responses to the questions in the employee engagement survey (Appendix D), the 360 supervisory and leadership assessment survey (Appendix A), and organizational performance data reflected in the quality dashboard (Appendix E).

Procedures

This section describes the operational procedures used to determine the relationship between descriptive numeric data elements. The procedures are inclusive of data management and analytical techniques used in the course of this study.

Data management. The following steps outline the process for receiving and managing data utilized in this study:

1. An XLSX file with a paired data set including 360 assessment responses and employee engagement survey responses was be passed to the researcher.
2. The research then incorporated quality measures into the paired data in XLSX matching technology group quality measures with the technology groups represented in the sample data set.
3. The researcher then extracted the data elements for each question set by importing the relevant data into SPSS[7] for data analysis.
4. The researcher then began the data analysis described in the analytical techniques below.

Analytical techniques. The following steps outline the process for examining the corollary relationships examined in this study:

- Correlation Analysis was run to determine correlation coefficient and p-value of the variables
- If the analysis yielded a p-value that exceed α the principal researcher recorded the results and discontinued further analysis.

[7] SPSS is a statistical analysis software solution.

- If the analysis met the standard for statistical significance (α) the principal researcher ran regression analysis on the variables to determine the predictive nature of the relationship.

Research questions. Each research question in this section is followed by (a) a description of the variables being examined and (b) analytical process utilized to evaluate the data aligned to each of the questions.

The variables examined in question one included an averaged categorical scoring of responses to the 51 questions into to the twelve supervisory and leadership competencies in addition to an overall effectiveness category evaluated in the 360 assessment survey and the responses to the 69 questions in eight categorical roll up of questions asked in the employee engagement survey. Correlation analysis was run in SPSS to surface any relationships that existed between employee competency level responses in the supervisory and leadership competencies scores and the summative categorical data in employee engagement survey scores. Where relationships between data yielded strong correlation that proved to be statistically significant the researcher then ran regression analysis to determine the predictive quality of the relationship(s).

1. Does a relationship exist between leadership competency ratings and employee engagement survey scores?

The variables examined in question two included information on customer found defects (“CFD”), development practices adoption index (“DPAI”) a measure of the rate in which customers adopt or deploy Company X technology, release note enclosures (“RNE”) measuring the number of defect in the release notes, mean time to resolve (“MTTR”), customer satisfaction (“CSAT”), internal found defects (“IFD”), and quality

targets at time of execute commit ("QT@EC") execute commit is a decision point in the new product release process triggering significant product development investment. One additional variable was examined in the research as the data was readily available on the dashboard; rework cost as a percentage of revenue. The outcome of the data analysis for rework cost as a percentage of revenue is reflected in additional findings in chapter four. Correlation analysis was run in SPSS to surface any relationships between the employee engagement survey responses to the quality measures on the dashboard (Appendix E). Where a correlation analysis was strong and statistically significant the research ran regression analysis to determine the predictive quality of the relationship(s).

2. Are measures of organizational quality higher where increased levels of employee engagement survey scores are present?

The variables examined in question three included the differences expressed as a variance in the supervisory and employee responses in the 360 competency assessment and corresponding employee engagement survey scores for those supervisors. Correlation analysis was run in SPSS to surface any relationships between the supervisor and employee variances to the 360 competency assessment. Where strong correlation that was statistically significant was established the research ran regression analysis to determine the predictive quality of the relationship(s).

3. Is there a relationship between the variability in a supervisors self perception and their subordinates perception of demonstrable competency levels and employee engagement survey scores?

The variables to be examined in question four include supervisory performance assessment ratings and the supervisory and employee responses in the 360 competency

assessment. Mean scores from the 360 assessment survey results were mapped to the annual performance ratings to evaluate the relationship between executive competencies and performance ratings.

4. Does the annual performance assessment process at Company X reward leadership competencies?

Limitations

The limitations of this study include the following:

1. The study is limited in scope to engineering executives at Company X.
2. Based on sampling methodology (non probability sampling), it is not possible to estimate sampling errors (Pedhazur & Schmelkin, 1991).
3. Data about level of education, age, and ethnicity have not been collected and for that reason will not be evaluated as potential variables.

Summary of Human Subjects Considerations

This study requires Institutional Review Board (IRB) approval from Pepperdine University. With that said, the study described herein is believed to be exempted from the IRB process since it represents minimal risk to the participants whose data is being analyzed in this study (Institutional Review Board, 2010). Minimal risk is defined as:

> ...the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests" (§ 97.102 Definitions,(i)) (U.S. Department of Education, 2005).

Category of research activity. 45 CFR 46.101(b)(4) of the United States Department of Health and Human Services federal regulations (U.S. Department of

Health and Human Services, 2009). Under section 45 CFR 46.101(b)(4) this study meets the requirements for exempted status, as stated in section (b) subsection (4):

> Unless otherwise required by department or agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy: Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. (pp. 5-9)

Involvement of human subjects. This study solicited data from three different groups within Company X: (a) the talent management organization responsible for the control and maintenance of 360 assessment data; (b) the program management office within the human resources function responsible for conducting the survey within the company and managing the data associated with the employee engagement for purposes of analysis; and (c) the engineering function responsible for defining, measuring, and reporting on productivity and quality measures within the engineering organization.

The study required no direct contact with human subjects since the data for this study was collected prior to the start of the study. The honest broker removed all personal identification from the employee engagement and 360 assessment data before passing the data to the researcher, ensuring the privacy of the people whose data was analyzed in this study. The removal of all personal information from data set suggests that this research

methodology meet the requirements for exemption by the Pepperdine University Institutional Review Board (2010).

Protection of data. The data collected and synthesized in this study will continue to be maintained in accordance with the Data Protection Act of 1998 and IRB guidelines set forth by the United States Department of Health and Human Services (U.S. Department of Health and Human Services, 2009).

Chapter 4: Results

The purpose of this study was threefold: (a) to understand the relationship between leadership capability and employee engagement; (b) to understand the relationship between employee engagement and business performance measures; and (c) to understand if the capabilities that contribute to employee engagement are rewarded in Company X annual performance process such that the company is optimizing employee engagement and by extension business performance.

Results of Research Question One

Does a relationship exist between leadership competency ratings and employee engagement survey scores?

Question one examines the relationship between leadership behavior as an independent variable on employee engagement as a dependent variable. To analyze the relationship the principle researcher ran correlation analysis on 104 variables. The sample size in question one included 17 subjects, missing data in the 360 analysis reduced the total number of rows used in estimation to 12. Of the 104 variables three combinations yielded statistically significant relationships. Due to sample size limitations in the data regression analysis was not performed. The variables yielding statistically significant relationships are reflected in Table 1. A comprehensive listing of the correlation analysis on the 104 variables analyzed in question one can be found in Appendix F.

Table 1.

Results for the Variables Yielding Statistically Significant Relationships in Question One

Variables tested	*r*	*p*	r^2	Conclusion
Organizational alignment and developing others	.57	.05	.3267; 32.67% of the change in employee engagement scores associated with organizational alignment can be accounted for by differences in the category associated with the leadership competency developing others.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between organizational alignment and developing others. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.
Organizational alignment and demonstrating passion	.58	.04	.3437; 34.37% of the change in employee engagement scores associated with organizational alignment can be accounted for by differences in the category associated with the leadership competency demonstrating passion.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a statistically significant relationship between organizational alignment and demonstrating passion. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.
Organizational alignment and leading change	.62	.03	.3861; 38.61% of the change in employee engagement scores associated with organizational alignment can be accounted for by differences in the category associated with the leadership competency leading change	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a statistically significant relationship between organizational alignment and demonstrating passion. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.

Note: N=12 for each group represented. r^2 value is only reported for variables where $p \leq .05$.

Results of Research Question Two

Does a relationship exist between employee engagement survey scores and quality performance measures?

Question two examines the relationship between employee engagement categories as independent variables on measures of organizational performance—expressed as

quality performance measures—as dependent variables. To analyze the relationship the principle researcher ran correlation analysis on 57 variables. The sample size includes employee engagement data from 17 subjects and quality measures from all but one of the technology groups outlined in the "demographic profile of subjects" referenced in the introduction of this chapter. NSSTG data was not published in time for inclusion in this study. It should be noted that quality targets at time of execute commit ("QT@EC") was omitted as a measure of performance; the data was not available to the principle researcher for inclusion in this study. With that said, the inclusion of an additional variable has been provided in the Additional Findings section of the study as data on Rework as a Percentage of Revenue was available in the supplementary operating metrics on the same dashboard, referenced in Appendix D.

Of the 57 variables five combinations yielded statistically significant relationships. Due to sample size limitations in the data regression analysis was not performed. The variables yielding statistically significant relationships are reflected in Table 2. A Comprehensive listing of the correlation analysis on the 57 variables analyzed in question two can be found in Appendix G.

Results of Research Question Three

Does a relationship exist between the variance in supervisor and subordinate 360 assessment ratings and employee engagement survey scores?

Table 2.

Results for the Variables Yielding Statistically Significant Relationships in Question Two

Variables tested	*r*	*p*	r^2	Conclusion
CFD and collaboration	.55	.04	.3031; 30.31% of the change in customer found defects can be accounted for by differences in the employee engagement scores associated with collaboration.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between CFD and Collaboration. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.
MTTR and collaboration	.52	.05	.2739; 27.39% of the change in mean time to resolve can be accounted for by differences in the category associated with collaboration in the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between MTTR and collaboration. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.
CFD and development	.53	.04	.2866; 28.66% of the change in customer found defects can be accounted for by differences in the category associated with development in the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between CFD and development. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.
CSAT and organizational alignment	-.62	.01	.3922; 39.22% of the change in customer satisfaction can be accounted for by differences in the category associated with organizational alignment in the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between CSAT and organizational alignment. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.
IFD and organizational alignment	-.54	.04	.3016; 30.16% of the change in internal found defects can be accounted for by differences in the category associated with organizational alignment in the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between IFD and organizational alignment. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.

Note*: N*=17 for each group represented. r^2 value is only reported for variables where $p \leq .05$.

Question three examines the variance between employee and supervisor perceptions of competence in the 360 survey assessment as an independent variable and employee engagement results as a dependent variable. To analyze the relationship the principle researcher conducted a two-step process to analyze the relationship. In step one

the principle researcher ran a variance report on each of the thirteen 360 survey category variables. The computer-generated results were used to capture the disparity between a manager's self-rating and their subordinates' ratings in category. The variance table was then utilized as a variable in step two. Step two was a correlation analysis on 104 variables to evaluate any relationship that exists between the size of variance reflected in and employee engagement survey responses. The sample size includes 360 survey assessment category data from 12 of the 17 subjects in the study. The outcome of the analysis is represented in the following data:

The computer generated output yielded from step one of the analysis the data in Table 3, representing the dispersion between manager self ratings and their subordinate ratings for each of the 13 competencies identified in Appendix A. Table 3 represents the computer generated variability matrix utilized in step 2.

Of the 156 competency ratings evaluated in Table 3, 52.56% of the competencies were given a higher score by the subordinate than the supervisors. Further, 75% of the subjects had multiple subordinate scores that exceed the supervisor's own ratings. Of the 75% referenced the scores of each subject that exceeded the supervisors own ratings ranged from 2-13 of the competency categories. Only three of the subjects in the study had scores that were above that of their subordinates in all 13 competency categories. Furthermore, only one subject had ratings lower than their subordinate scores in all 13 competency categories.

Table 3.

The Variability Between Managers' Self-Ratings and Subordinate Ratings in the C-LEAD Competency Assessment Categories Outlined in Appendix A

Subject	Working Across Boundaries	Engaging Others	Earning Trust	Developing Self	Developing Others	Demonstrating Passion	Empowering Teams	Achieving Results	Shaping Strategy	Building Capability	Promoting Innovation	Leading Change	Overall Effectiveness
1	.10	.10	.09	.09	.10	.13	.17	.19	.19	.19	.20	.21	.19
5	.06	.06	.06	.05	.08	.10	.10	.11	.11	.10	.10	.07	.08
7	.05	.04	.06	.06	.05	.05	.05	.04	.06	.23	.23	.22	.22
8	.01	.08	.09	.12	.13	.17	.21	.22	.24	.24	.24	.24	.23
9	.08	.10	.11	.11	.11	.12	.10	.10	.10	.10	.10	.11	.11
10	.05	.08	.10	.09	.15	.16	.18	.18	.18	.20	.19	.19	.21
11	.04	.05	.12	.11	.12	.15	.15	.19	.19	.19	.19	.19	.20
13	.04	.05	.05	.10	.11	.15	.14	.13	.12	.12	.11	.10	.09
14	.04	.04	.05	.05	.05	.04	.05	.05	.06	.09	.07	.07	.07
15	.02	.11	.15	.16	.16	.19	.21	.24	.23	.23	.22	.20	.16
16	.10	.17	.20	.20	.21	.21	.21	.21	.21	.23	.20	.20	.18
17	.06	.08	.09	.16	.16	.18	.18	.17	.17	.17	.17	.17	.17

The data from step one was paired with the employee engagement survey responses in a secondary step taken by the researcher to determine if the gap between manager and subordinate scores in the 360 survey assessment have an effect on employee engagement scores.

The outcome of the secondary phase of analysis is reflected in Table 4. Of the 104 variables 2 combinations yielded statistically significant relationships. Due to sample size limitations in the data regression analysis was not performed. The variables yielding statistically significant relationships are reflected in Table 4. A comprehensive listing of the correlation analysis on the 104 variables analyzed in question three can be found in Appendix H.

Table 4.

Results for the Variables Yielding Statistically Significant Relationships in Question Three

Variables tested	*r*	*p*	r^2	Conclusion
Organizational alignment and achieving results	-.40	.04	.3381; 33.81% of the change in employee engagement scores associated with organizational alignment can be accounted for by the size of variance in supervisor and subordinate perceptions of capability associated with the leadership competency demonstrating passion.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a statistically significant relationship between organizational alignment and demonstrating passion. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.
Organizational alignment and shaping strategy	-.61	.03	.3735; 37.35% of the change in organizational alignment can be accounted for by differences in the size of variance between employee and supervisor perceptions associated with the leadership competency shaping strategy.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between organizational alignment and developing others. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.

Note*: N*=12 for each group represented. r^2 value is only reported for variables where $p \leq .05$.

Results of Research Question Four

Does the annual performance assessment process at Company X reward leadership competencies?

The variables to be examined in this question include supervisory performance assessment ratings and the subjects' 360 competency assessment scores. Analysis was run to determine the mean competency scores yielded from the 360 assessment survey in relation to the tiered performance ratings for each of the subject in the study. Table 5 represents the computer generated mean for each of the performance rating categories referenced in Table 5 in conjunction with the mean scores of the 360 survey assessment for each competency category referenced in Appendix A.

Table 5.

Mean Scores on C-LEAD Competency Categories Aligned to Performance Rating

Performance Rating Categories	Working Across Boundaries	Engaging Others	Earning Trust	Developing Self	Developing Others	Demonstrating Passion	Empowering Teams	Achieving Results	Shaping Strategy	Building Capability	Promoting Innovation	Leading Change	Overall Effectiveness
"X" Employee Clearly Performs in an Exceptional Manner – Rating is reflective of highest 10%	3.82	3.92	4.39	4.05	3.94	4.00	4.00	3.98	3.86	3.96	3.94	3.75	4.18
"E+" Employee is Successful and Performs Higher than Expected – Rating is reflective of Highest 25%	4.06	4.09	4.11	4.13	4.03	4.11	4.11	4.19	3.95	3.98	3.96	4.00	4.02
"E" Employee is Successful – Rating is reflective of "Core"	3.79	3.80	4.07	3.95	4.02	4.08	4.09	4.14	3.90	3.76	3.99	4.03	3.93

Note: E- and N ratings are not reported in the above table because the sample population is not reflected in the rating data.

The mean scores reflected in Table 5 suggest a lack of alignment between competency and performance ratings, with eleven out of twelve mean scores in the highest 10% being lower than those in the lower level rating category of highest 25%. Additionally, in six of the twelve competency categories the mean score was higher in the lowest performance category (core) than that of the highest level of performance (highest 10%). In no competency category were mean scores higher in the highest level of performance (highest 10%) than the mean scores present in the next lower performance tier (top 10%). Performance ratings are tied to the monetary reward processes at Company X. The mean performance ratings present the likelihood that lower levels of ability achieve greater monetary benefit than there more skilled counterparts. It should be noted that the next level supervisor ratings were not included in this study. A recommendation for future research, see chapter five, includes further analysis to understand if the up line supervisor's perception of competence deviate from subordinate 360 survey assessment data utilized in the analysis.

Additional Findings

Although not defined as a performance measure in the study the principle researcher had access to the quality measure "Rework Costs as a Percentage of Revenue" as a part of the supplemental operating metrics. The rework costs as a percentage of revenue measures include the impact of poor quality on the organization financials, as a percentage of the business groups' revenue. The quality measure is inclusive of preventable costs attributable to hardware and software failures as well as warranty expenses. It is worth noting that the correlation coefficient between rework as a percentage of revenue and seven of the eight measures of employee engagement yielded strong correlation coefficients and statistically significant relationships. Specifically, the following combinations should be analyzed further as the data suggests there is opportunity for reducing rework expenses through increased levels of employee engagement. The breadth and strength of the relationships between rework as a percentage of revenue and measures of employee engagement are reflected in Table 6.

Table 6.

Results for the Variables Associated with Rework as a Percentage of Revenue and Measures of Employee Engagement

Variables tested	r	p	r^2	Conclusion
Rework as a percentage of revenue and employee engagement index	-.75	.00	.5650; 56.50% of the change in rework as a percentage of revenue can be accounted for by differences in the category associated with the employee engagement index.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a statistically significant relationship between rework as a percentage of revenue and the employee engagement index. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.

(table continues)

Variables tested	r	p	r^2	Conclusion
Rework as a percentage of revenue and collaboration	-.52	.05	.2754; 27.54% of the change in rework as a percentage of revenue can be accounted for by differences in the category associated with collaboration category of the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a statistically significant relationship between rework as a percentage of revenue and collaboration. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.
Rework as a percentage of revenue and communication	-.74	.00	.5598; 55.98 % of the change in rework as a percentage of revenue can be accounted for by differences in the category associated with communication category of the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a statistically significant relationship between rework as a percentage of revenue and communication. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.
Rework as a percentage of revenue and innovation excellence	-.68	.01	.4680; 46.80% of the change in rework as a percentage of revenue can be accounted for by differences in the category associated with innovation excellence category of the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a statistically significant relationship between rework as a percentage of revenue and innovation excellence. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.
Rework as a percentage of revenue and recognition	-.75	.00	.5693; 56.93% of the change in rework as a percentage of revenue can be accounted for by differences in the category associated with innovation excellence category of the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a statistically significant relationship between rework as a percentage of revenue and recognition. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.

Note*: N*=17 for each group represented. r^2 value is only reported for variables with $p \leq .05$.

Chapter 5: Discussion

Summary of the Design

Subjects in this study were engineering executives at Company X. Data were gathered in partnership with the teams responsible for executive assessments and the employee engagement team. An honest broker gathered and paired information from the executive 360 survey assessments and employee engagement responses to create a combined dataset for purposes of this study. The honest broker then removed all identifying personal information from the dataset before sending it to the principal researcher. The principal researcher then incorporated the primary and supplementary business performance metrics matching the technology group information (included as a part of the 360 assessment data) to the corresponding performance metrics found in Appendix D.

Employee engagement information data was provided for seventeen (N=17) engineering directors at Company X. Additionally, 360 survey assessment data was provided for twelve (*n*=12) of the same engineering directors. The demographics for the population of engineering directors serving as subjects can be found in the following section, "Demographic Profile of the Subjects."

Correlation coefficients were run for research questions one, two, and three; and reported as statistically significant where the p-value was less than or equal to .05. Regression analysis—identified in the study as a secondary step based on findings in the correlation analysis—was not performed as a subsequent step on any of the questions due to the sample size limitations present in the analysis. The number of variables in

combination with the small sample size would nullify the results of the regression analysis.

Mean scores were run for research question four to examine the relationship between pay and competency scores. The results of the mean scores couple with the outcome of the test of assumptions including a analysis of variance on all thirteen competencies did not yield any significant relationships between competency and annual performance ratings. Computer analytics did not yield any statistically significant relationships in the 54 variables analyzed.

Demographic Profile of the Subjects

Additional demographic data was collected during the 360 assessment process. Demographic data collected on the subjects included job grades, performance ratings, longevity of employment at Company X, the department or technology group, and the subject's geographic theater or work location.

Job grades. Two job grades are represented by the subjects within the study; grade 13 and grade 14, both of which are director job titles. Grade 13 is a director job title and grade 14 is a senior director job title. The director job role is a tier above a manager job level and a tier below a vice president job level.

Performance ratings. Three performance rating tiers are represented by the subjects in the study: core, highest 25%, and highest 10%. Of the participants, 41.18% have a performance rating of core, 41.18% have a performance rating of highest 25%, and 17.65% of the participants have a performance rating of highest 10%.

Tenure. The subjects in this study have employment tenure ranging from 1 year to more than 10 years of employment at Company X. Of the subjects, 47.06% have worked

at Company X for more than 10 years, 35.29% have 8-10 years tenure, 5.88% have between five to seven years tenure, and 11.76% have one to two years tenure.

Technology groups. There are five departments or technology groups represented by the subjects in this study. Of the subjects, 35.29% work within the ETG technology group, 17.65% work within the ECSB technology group, 17.65% work within the SPG technology group, 17.65% work within the NSS technology group, and 11.76% work within DSO.

Geography. The geographies represented by the subjects include the United States and Asian Pacific. Of the subjects, 64.71% work in the state of California, 17.65% work in the state of Texas, 5.88% work in the state of Illinois, 5.88% work in the state of Ohio, and 5.88% work in Karnataka, a state in southern India.

Summary of the Findings

Although the sample size was relatively small (n=17) with only a subset of the 17 (n=12) subjects having 360 survey assessment data—the findings represent an exciting basis for understanding the relationship between leadership capability, business performance and employee engagement. The summative results yielded multiple relationships between organizational alignment and leadership competencies as well as between organizational alignment and business performance metrics. The r-squared scores for relationships associated with organizational alignment ranged from .3016 to .3922 or 30.16% and 39.22% respectively. Based on the data investment in building leadership capability generates a corresponding increase in organizational alignment. Furthermore, the increase in organizational alignment corresponds with improvements in quality performance measures.

The data analyzed in this study is divided into three categories: (a) the variables that were strongly correlated and generated a p-value that met the standard threshold of statistical significance; (b) the variables that were strongly or weakly correlated, generating a p-value that did not meet the standard of statistical significance ($p \leq .05$); and (c) while similar to "b" in that they did not meet the standard of statistical significance these variables were strongly correlated, generating a p-value that slightly exceeded the threshold of statistical significance. Nine of the variables evaluated across questions one, two, and three had p-values that did not meet α; it is worth noting the nine variables referenced had p-values below .10. Recommendations for future research include the evaluation of these variables using larger sample sizes.

The most exciting aspect of this research project is the formative insight it provides into the linkages between leadership competencies, employee engagement, and business performance. In research question one the principal researcher evaluated the relationship between leadership behavior and employee engagement. In research question two the principal researcher measured the relationship between employee engagement and business performance measures. The linkages between the three domains are represented in Figure 6.

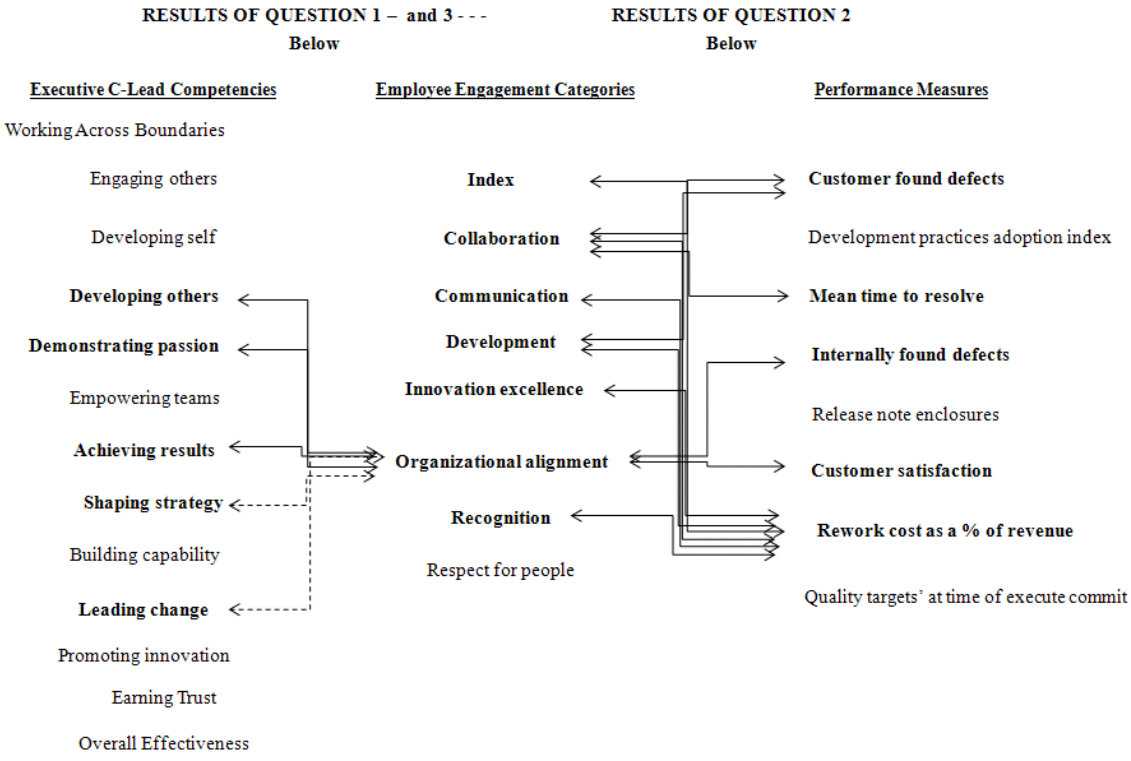

Figure 6. The relationship between executive C-LEAD model, employee engagement, and quality performance measures across research questions one, two, and three.

The link between competencies in the executive C-LEAD model and employment engagement (represented in the left hand portion of Figure 6) would increase from three to nine points of connection if the threshold for statistical significance was increased to $p = .10$. In light of the sample size limitations the principal researcher believes the combination of variables noted below would likely drop below the threshold of .05 if the sample size were to increase. For that reason, this researcher feels that the population should be reevaluated with a larger sample size. Specifically, the following variables yielded p-values below 0.10:

1. Respect for People and Leading Change ($r = .53$, $p = .07$, $r^2 = .2882$)

2. Respect for People and Overall Effectiveness (r = .52, p = .08, r^2 = .2749)
3. Respect for People and Shaping Strategy (r = .52, p = .08, r^2 = .2741)
4. Respect for People and Achieving Results (r = -.51, p = .08, r^2 = .2658)
5. Organizational Alignment and Empowering Teams (r = .54, p = .06, r^2 = .2950)
6. Index and Working Across Boundaries (r = .55, p = .06, r^2 = .3097)

Were the variables above to yield a p-value less than or equal to 0.05 with a larger sample size, Figure 6 would take on the visual effect of a neural network, depicting the interconnected nature of executive competencies, employee engagement, and quality performance measures. In its current state the connection between measures of employee engagement and quality performance measures are indisputable. Increased levels of employee engagement have a positive effect on the organization's quality performance measures.

Research Question One

Research question one asked: "Does a relationship exist between leadership competency ratings and employee engagement survey scores?" Of the 104 variables evaluated for correlation in research question one, 3 of the 12 leadership competencies yielded strong correlations to one of the employee engagement categories, organizational alignment, meeting the p-value threshold of .05. The three leadership competencies – developing others, demonstrating passion, and leading change – represent the change that can be accounted for by differences in the leadership competency category of organizational alignment. The r-squared value of these relationships ranged from .3267 to .3861. The r-squared data represents the percentage – ranging from 32.67% to 38.61% –

of change in organizational alignment that can be accounted for by differences in leadership competences. The leadership capabilities expressed in the three competency categories of developing others, demonstrating passion, and leading change include the following:

- Ensuring employees have basic literacy about Company X's business;
- Providing candid, actionable feedback to the team about strengths and developmental needs;
- Challenging people through meaningful job assignments;
- Communicating with authenticity;
- Personal commitment and accountability;
- Pride in Company X business;
- Leveraging market transitions to drive meaningful changes within the business;
- Effectively guiding the team through times of change while minimizing resistance to change; and
- The ability to make needed decisions along with the flexibility to change course when necessary in order to capitalize on new opportunities.

Ensuring Company X maximizes its talent contribution, both at the supervisory and subordinate levels, is attainable through a focus on leadership competencies. Leadership competencies contribute not only to improving the leadership bench strength but also significantly contribute to the engagement – and by extension performance – of the larger employee population represented in this study (Gebauer et al., 2008; Towers Perrin, 2008).

Research Question Two

Research question two asked: "Does a relationship exist between employee engagement survey scores and quality performance measures?" Of the 57 variables evaluated for correlation in question two, strong correlations were present in 11 of the variable combinations. The r-squared results for these 11 variables ranged from .2739 to .5693.

Of the eight quality performance measures evaluated in this study, seven yielded significant relationships to one or more corresponding employee engagement variables. The robust connection between quality performance measures and employee engagement is reflected in the points of connection illustrated in Figure 6.

Only one category, respect for people, failed to yield a statistically significant correlation to one of the business performance metrics evaluated in this study. It should be noted that the relationship between rework as a percent of revenue and respect for people yielded a p-value of .06, which was slightly above the threshold of statistical significance. Three of the variable combinations evaluated in question two yielded a strong correlation with a corresponding p-value between .05 and .10. The principal researcher believes that given the strength of the correlation coefficients (ranging from .47 to .50) and the proximity of the p-value to α with a sample size of 12, a larger sample size may shed light on a greater number of leadership categories that influence employee engagement.

Research Question Three

Research question three asked: "Is there a relationship between the variability in a supervisor's self-perception and their subordinates' perceptions and employee

engagement survey scores?" The principal researcher ran correlation analysis on 104 variables to understand if variability between supervisor and subordinate views of competence were related to employee engagement scores. Similar to research question one, the purpose of research question three is to evaluate the relationship between leadership competency scores and employee engagement. The difference between question one and three is the examination of variance between a managers self rating and those of their subordinates'. The principal researcher sought to understand if the size of gap between the two scores had a statistically significant relationship with employee engagement scores. Of the 104 variables evaluated for correlation in question three, strong correlations were present in two of the variables analyzed:

1. Organizational Alignment and Achieving Results (r = -.58, p = .04, r^2 = .3381)
2. Organizational Alignment and Shaping Strategy (r = -.61, p = .03, r^2 = .3735)

The few but meaningful relationships that exist between the gap in manager and subordinate ratings and employee engagement are most interesting given the findings in the first research question. Additionally, both of the variables are negatively correlated. The negative values reflected in the correlation coefficient can be interpreted to mean that the corresponding variables vary together negatively or in opposite directions; as the gap between a manager's self-ratings and their subordinates' ratings increase the employee engagement scores in the category of organizational alignment decline.

Research Question Four

Research question four asked: "Does the annual performance assessment process at Company X reward leadership competencies?" The principal researcher ran computer analysis to understand if there were any perceptible differences in the mean competency

scores between performance ratings. The results of the analysis are reflected in Table 2. A test of assumptions including an analysis of variance on all thirteen competencies across the three annual performance categories represented by the sample population yielded p-value scores that exceed α leading the researcher to conclude there is no statistically significant relationship between competency ratings and annual performance ratings. The range of mean scores for each performance tier is reflected below:

- Mean scores for executives rated in the top 10% performance category ranged from 3.75 to 4.39. Earning trust (mean score = 4.39) was the only category where the top 10% mean score exceed the mean score results in the top 25%. The second highest mean score in the top 10% was 4.18.
- Mean scores for executives rated in the top 25% performance category ranged from 3.95 to 4.19.
- Mean scores for executives rated in the core performance category ranged from 3.76 to 4.14.

Given the relationship between the 360 survey assessment and employee engagement, the engineering department has an opportunity to influence employee engagement through greater leadership insight and developmental focus on building C-LEAD competencies within its management ranks. The minimal expense associated with the utilization of the 360 survey assessment makes it a practical point of leverage in a manager's journey to gain better insight into their leadership capability and a more focused approach to personal development planning. The organizational benefits include greater employee satisfaction that lead to increased levels of organizational performance.

Recommendations for Future Research

The principal researcher has made reference to recommendations for future research throughout chapters four and five. These recommendations include any future research include the up-line supervisory 360 assessment and pulse survey scores when examining the relationship between the 360 assessment scores and employee engagement results. An employee's annual performance rating is not based on the perceptions of subordinates; they are based on the perceptions of the up-line supervisor. Evaluating the alignment of mean competency scores from the up-line supervisor with performance evaluations would provide a more accurate view of the relationship competency and performance data.

It is also the recommendation of the researcher that the study be replicated, in particular questions one and two with a sample size that permits not only correlation but regression analysis to be meaningfully explored. It is through regression analysis –with an adequate sample size—that any predictive relationships existing between leadership capability, employee engagement, and quality performance measure can be understood. Moreover, it is through regression analysis that suppressed variables would be exposed allowing the full breadth of interconnectedness between leadership capability, employee engagement, and quality performance measures to be understood. The process of regression analysis provides the researcher a richer context for evaluating the interconnected nature of work. A catalyst for the intellectual long jumps Hamel (2007) acknowledges are required to change ones understanding of the relationship between environment, productivity, and leadership practices.

Finally, the recommendation of the principal researcher includes future research that involves a return to the existing data. The raw data from the 360 survey assessment includes written commentary from subordinates that would provide qualitative insight into the employee experience attributed to managerial behaviors. The sample size allows for qualitative data to be examined in detail and coupled with the quantitative data elements complimenting the current findings. Replication of the study using mixed methods methodology would provide the researcher with a deeper understanding of leadership practices and environment within the engineering department.

Conclusion

The outcome of this study is consistent with modern literature about the relationship between employee engagement and organizational performance. This study represents an opportunity to examine the engineering organization as an interdependent system; providing engineering leaders a deeper understanding of the leadership capabilities that nurture employee commitment. Moreover, the study provides a glimpse into the linkages that extend beyond the literature in providing company x insight into the interdependencies between leadership capability, employee engagement, and performance. The literature focuses on the relationship between leadership capability and environment or environment and organizational performance but does not look across all three domains within the theory of organization as an interdependent system. The quantitative approach to the study provides a data driven analysis of the interdependencies between leadership capability, employee engagement, and performance outcomes: exposing relationships that might have otherwise been viewed as negligible. The sample size limitations mean that the outcome of this study provides a

starting point rather than an end point for understanding that nature and predictive capacity of these relationships. It is the researchers hope the outcome of this study is an impetus for additional research.

Leadership capability, employee engagement, and business performance should not be mistaken for independent disciplines. The results of this study corroborate the interconnected relationship between leadership capability, employee engagement, and performance outcomes. Organizations are living organisms whose health and well being are measured by employee satisfaction, and low levels of employee satisfaction significantly reduce organizational performance (Watson Wyatt Worldwide, 2007). This research study represents an exciting step toward understanding the relationship between these interrelated disciplines at Company X.

If Company X seeks to epitomize success in the 21st century it will need to embrace leadership behaviors that capitalize on the collective intelligence of the workforce. The first step begins with understanding the competencies that engender employee commitment. It is through employee commitment that Company X has the opportunity to be the model of success in the 21st century. Employee commitment can best be cultivated by creating and nurturing an environment that ignites unparalleled passion and commitment to organizational success, success that hinges on effective leadership and employee commitment. This study represents a data-driven call to action, one that supports the engineering department's continued progress toward the 21st century organizational ideal.

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APPENDIX A

C-LEAD Online 360 Assessment Survey

COLLABORATE

Working Across Boundaries

1. Develops strategy in partnership with customers, partners, suppliers, functions, and theaters.
2. Shares resources, ideas, and information to advance the objectives of other functions or theatres.
3. Works with other groups to evaluate up- and down-stream impacts before making decisions.
4. Uses collaborative technology to stay connected with team members, customers, partners, and peers around the world.

Engaging Others

5. Draws connections between individual or team efforts and [Company X's] success.
6. Earns support by aligning business objectives with other functions and/or geographies.
7. Gains agreement on governance models to guide cross-functional and/or cross-theatre efforts.
8. Translates complex business concepts into messages that connect with a variety of audiences.

Earning Trust

9. Delivers on commitments made to others.
10. Demonstrates respect for others, even under trying circumstances.
11. Listens – to fully understand other ideas or points of view.
12. Raises issues for discussion; encouraging candor and minimizing surprises.

LEARN

Developing Self

13. Continues to develop own technical/functional and leadership capabilities.
14. Learns business models and value systems of customers and up/down-stream partners.
15. Increases own knowledge of [Company X] role and position in the global marketplace.
16. Learns and applies techniques for leading across diverse cultures, perspectives, styles, and generations.

Developing Others

17. Ensures a baseline level of literacy in own organization on [Company X] key customers, products, emerging technologies, and differentiators in the market.
18. Provides candid, actionable feedback to team members on their strengths and development needs.
19. Pushes others beyond their comfort zone and challenges their thinking through meaningful roles or assignments.

EXECUTE

Demonstrating Passion

20. Communicates with authenticity, sharing personal reactions and anecdotes about the business.
21. Demonstrates commitment to and personal accountability for [Company X's] success in the marketplace.
22. Expresses pride in [Company X's] business direction and philanthropic work.

Empowering Teams

23. Sets high standards for the organization – driving to consistently exceed customer expectations.
24. Gives team members the opportunity and latitude to run their area(s) of the business.
25. Delegates meaningful work to maximize productivity and learning.
26. Manages urgency levels and conflicting requirements to ensure work is prioritized appropriately.

Achieving Results

27. Aligns the organization and allocates resources according to strategic priorities.
28. Translates strategy into clear accountabilities and operating plans.
29. Balances delivery timelines with the achievement of high quality, sustainable results.
30. Constructively challenges business plans; reviewing assumptions and major risks.
31. Drives continuous improvement and benchmarking for excellence.

ACCELERATE

Shaping Strategy

32. Establishes a clear vision and strategy for the organization.
33. Develops long-term goals that promote [Company X's] evolution and success in the global marketplace.
34. Frames problems broadly, acknowledging complex interdependencies and data from multiple sources.
35. Makes decisions that balance short-term gains with longer-term growth and success.
36. Develops plans with global economic, cultural, and geo-political considerations in mind.

Building Capability

37. Builds a pipeline of talent for critical roles in the organization.
38. Builds an organization of diverse yet complementary backgrounds, capabilities, and experiences.
39. Imports and exports talent across [Company X] to drive business results and support individual career goals.
40. Hires employees with the capabilities needed to achieve the organization's long-term objectives.

DISRUPT

Promoting Innovation

41. Invites constructive disagreement and differing points of view from the team as well as customers, stakeholders, and partners.
42. Encourages others to constructively challenge common practices as well as new ideas.
43. Ensures sufficient planning and structure are in place to maximize the impact of new ideas.
44. Allows time for new ideas to be successful before redirecting or stopping the efforts.

Leading Change

45. Uses market transitions and technology trends to drive meaningful change in the business.
46. Guides the team and customers through times of change or uncertainty.
47. Makes decisions quickly, changing course when necessary to address new issues or opportunities.
48. Anticipates and takes steps to minimize resistance to change.

Overall Effectiveness

49. Generates high levels of commitment and morale among employees.
50. Is an effective manager and leader.
51. Is a role model for [Company X] values.

APPENDIX B

Executive C-LEAD Model Corresponds to 360 Assessment Survey

C-LEAD

C-LEAD AT-A-GLANCE

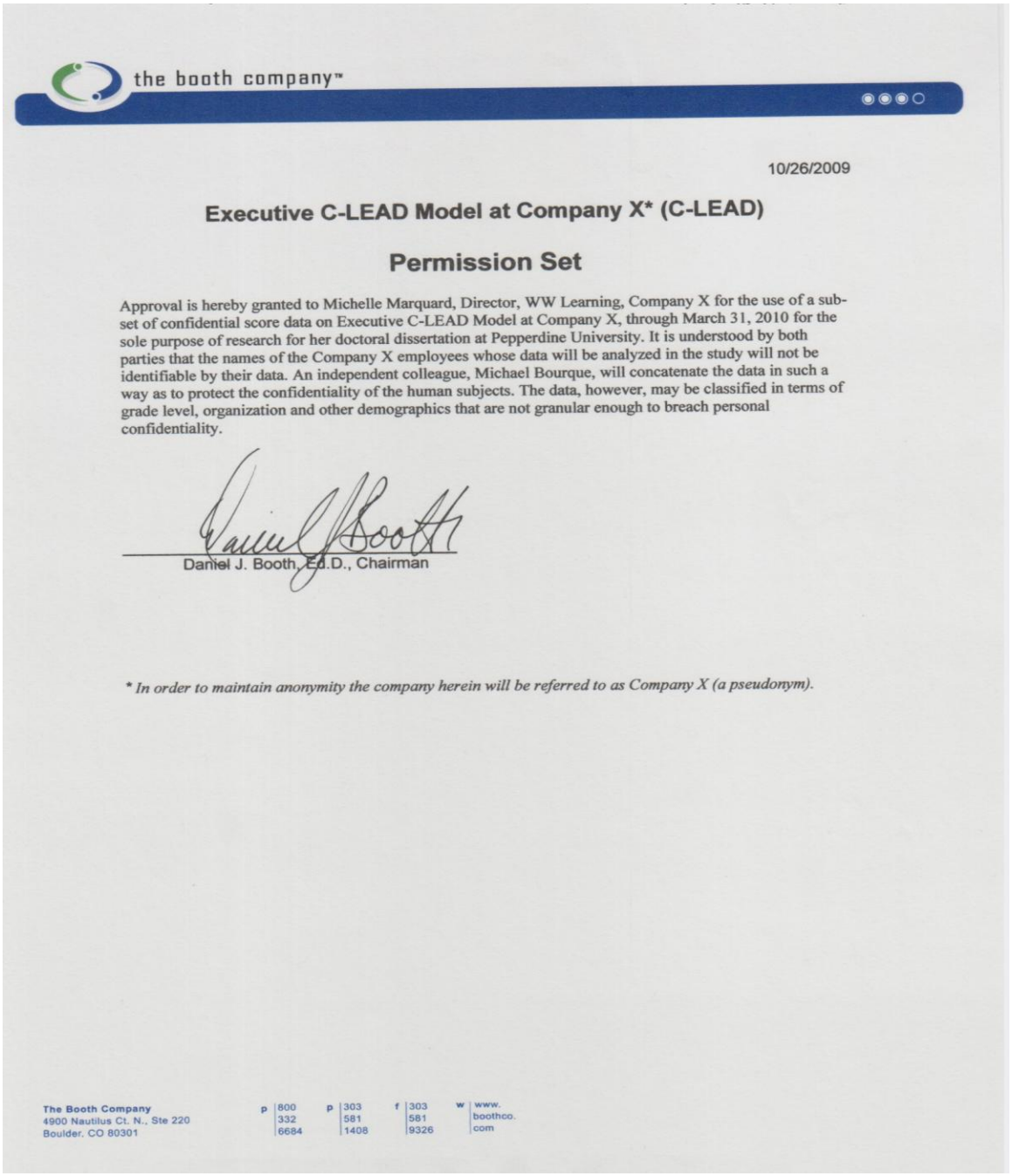
Leading a successful business in the face of chaos requires a unique combination of capabilities. These capabilities are defined in -- C-LEAD model.

Themes	Theme Definition	Competencies and Competency Definitions	
Collaborate	*Connecting with customers, partners, suppliers, and colleagues – across functions as well as geographies to achieve significant results.*	**Working Across Boundaries**	Involve customers, partners, suppliers, and groups from across the enterprise to develop strategy and maximize results.
		Engaging Others	Motivate others to align with and execute against the organization's objectives.
		Earning Trust	Earn the confidence of others through open communication and respectful behavior.
Learn	*Building capabilities by continuing to develop own and others' skills.*	**Developing Self**	Continue to develop the leadership and technical/functional capabilities needed to achieve results for --
		Developing Others	Help others develop the capabilities needed for individual career growth and effective leadership at --
Execute	*Delivering exceptional results by building commitment to the business and enabling teams to succeed.*	**Demonstrating Passion**	Communicate personal commitment to -- vision and success in the global marketplace.
		Empowering Teams	Provide the direction, support, and authority teams need to achieve significant results.
		Achieving Results	Translate strategy into clear operating plans and promote operational excellence in the delivery of results.
Accelerate	*Developing bold strategies and the organization's capability to achieve its objectives.*	**Shaping Strategy**	Develop a bold strategy for the business that is based on input from multiple sources and promotes short-term as well as long-term success.
		Building Capability	Build an exceptional portfolio of talent to lead and execute against -- business strategy.
Disrupt	*Promoting change and innovation to support Cisco's strategy and set -- apart in the global marketplace.*	**Promoting Innovation**	Create an environment that encourages innovation in support of -- business strategy.
		Leading Change	Initiate and effectively guide the organization through change.

From *C-LEAD At-A-GLANCE*, by Cisco Systems, Inc., 2007, San Jose, California.

APPENDIX C

Letter of Authorization from the Booth Company



the booth company™

10/26/2009

Executive C-LEAD Model at Company X* (C-LEAD)

Permission Set

Approval is hereby granted to Michelle Marquard, Director, WW Learning, Company X for the use of a sub-set of confidential score data on Executive C-LEAD Model at Company X, through March 31, 2010 for the sole purpose of research for her doctoral dissertation at Pepperdine University. It is understood by both parties that the names of the Company X employees whose data will be analyzed in the study will not be identifiable by their data. An independent colleague, Michael Bourque, will concatenate the data in such a way as to protect the confidentiality of the human subjects. The data, however, may be classified in terms of grade level, organization and other demographics that are not granular enough to breach personal confidentiality.

Daniel J. Booth, Ed.D., Chairman

** In order to maintain anonymity the company herein will be referred to as Company X (a pseudonym).*

The Booth Company
4900 Nautilus Ct. N., Ste 220
Boulder, CO 80301

p 800 332 6684 p 303 581 1408 f 303 581 9326 w www.boothco.com

APPENDIX D

Employee Engagement Survey Questionnaire

Item Order	Rollover Word	NEW FY09 Pulse Item	NEW FY09 Pulse Category
Header: [Company X] values social and environmental issues. Please provide your feedback on the following statements.			
1		I value how [Company X] Corporate Social Responsibility (e.g. Networking Academy, 21st Century Schools, [Company X] Foundation, Civic Councils, Community programs, etc.) positively impacts the way [Company X] is perceived in the community.	N/A
2		I know where to go for current information on [Company X]'s policies and achievements in the area of environmental sustainability.	N/A
3		I understand what I can do to help [Company X] reduce its overall Greenhouse Gas emissions.	N/A
Header: Please provide your feedback on Collaboration at [Company X].			
4	team	My team has a climate in which diverse perspectives are valued.	Collaboration
5	team	My team cooperates with other work groups to achieve business objectives.	Collaboration
6	manager	My manager uses team input to make decisions.	Collaboration
7	manager	My manager encourages cross-functional collaboration to achieve business goals.	Collaboration
8	SLT	[Company X] senior leadership team emphasizes, demonstrates and recognizes collaboration across functions.	Collaboration
9	manager	My manager creates a collaborative environment in which to make decisions.	Collaboration
10		I know how to use [Company X] communication and collaboration tools effectively.	Collaboration
11	organization	The people in my organization cooperate to get the job done.	Collaboration

Header: Please provide your feedback on Communication at [Company X].			
12		At [Company X], employees can voice their opinions without fear of retribution.	Communication
13	SLT	[Company X] senior leadership team effectively communicates our strategy.	Communication
14	management team	My management team effectively communicates how to execute on [Company X] strategy.	Communication
15	manager	I often provide feedback to my manager.	Communication
16		There is a climate of trust within [Company X].	Communication
17		If I have an ethics concern or question, I know where to go to report it.	Communication
18		I can get the information I need to do my job.	Communication
19	SLT	[Company X] senior leadership team communicates openly and honestly to employees.	Communication
20	manager	My manager speaks openly and honestly, even when the news is bad.	Communication
21	manager, team	My manager ensures that employees on our team clearly understand [Company X]'s vision and strategy for long-term growth and profitability.	Communication
22		I know where to find information on timely issues and events and other companywide updates necessary to do my job effectively.	Communication
Header: Please provide your feedback on Development at [Company X].			
23		I know how to use available resources to improve my skills.	Development
24	organization	Internal development opportunities are readily available in my organization.	Development
25		My manager actively supports my career development.	Development
26		I know what skills I will need in the future to be a valuable contributor in [Company X].	Development
27		I receive ongoing feedback that helps me improve my performance.	Development

28	manager	In the last 12 months, I have had a meaningful career development discussion with my manager.	Development
29	management team	My management team is committed to providing development opportunities for all employees.	Development
Header: Please provide your feedback on Innovation & Excellence at [Company X].			
30	management team	My management team encourages employees to come up with new and better ways of doing things.	Innovation & Excellence
31	manager	My manager encourages me to take informed risks in getting my work done.	Innovation & Excellence
32		I often do work that challenges me and my abilities.	Innovation & Excellence
33	management team	My management team uses the [Company X] Pulse Survey feedback to make improvements.	Innovation & Excellence
34		I have the authority to make decisions that improve the quality of my work.	Innovation & Excellence
35	management team	My management team supports the development of new and innovative ideas.	Innovation & Excellence
36	organization	In my organization, we are able to address problems and respond to opportunities quickly.	Innovation & Excellence
37		[Company X]’s focus on innovation will ensure our success in current and future market opportunities.	Innovation & Excellence
Header: Please provide your feedback on Organizational Alignment at [Company X].			
38	manager	My manager informs me when priorities change in order to avoid wasting time and effort.	Organizational Alignment
39	organization	I can see a clear link between my work, my organization's objectives, and [Company X] strategy.	Organizational Alignment
40		I am confident that [Company X] will continue to lead the networking industry.	Organizational Alignment
41	SLT	I am confident in [Company X] senior leadership team's ability to implement our strategy.	Organizational Alignment
42		I believe in [Company X]’s strategy for developing the future of networking.	Organizational Alignment

43		[Company X] is aligning resources effectively to balance future growth and current profit.	Organizational Alignment
44		I clearly understand [Company X] corporate governance model (OC --> councils --> boards) and process used to determine priorities.	Organizational Alignment
Header: Please provide your feedback on Recognition at [Company X].			
45		At [Company X], people are rewarded according to their job performance and accomplishments.	Recognition
46		I understand what is expected of me to increase my chances of receiving a promotion.	Recognition
47		I understand how my performance is evaluated.	Recognition
48		When I do an excellent job, my accomplishments are recognized.	Recognition
49		The rewards for achieving the results expected of me are worth the effort.	Recognition
Header: Please provide your feedback on Respect for People at [Company X].			
50		At [Company X], employees are treated with respect, regardless of their job or level.	Respect for People
51		I know how to address disrespectful behavior.	Respect for People
52		I can succeed at [Company X] without sacrificing aspects of my personality or culture .	Respect for People
53	manager, team	My manager ensures fair treatment for everyone on my team.	Respect for People
54	SLT	[Company X] senior leadership team emphasizes the value of a diverse workforce.	Respect for People
55		I have a positive relationship with my direct manager.	Respect for People
56		I have confidence that [Company X] takes ethical business concerns seriously.	Respect for People
57	manager	My manager supports my efforts to balance my work and personal life.	Respect for People

58	manager	My manager encourages me to make physical and emotional health a priority.	Respect for People
59	management team	My management team sets a good example of [Company X] values, culture and code of business conduct.	Respect for People
Header: This section is designed to address Employee Engagement, the emotional and intellectual investment employees make to help realize [Company X] vision. Please provide your feedback by responding to the items below.			
60		I would recommend [Company X] as a great place to work to family, friends, and talented colleagues.	Index
61		I am proud to work for [Company X].	Index
62		Working at [Company X] inspires me to do my best.	Index
63		Taking everything into account, I would say this is a great place to work.	Index
64		[Company X] will enable me to reach my career potential.	Index
65		I often put more effort into my job than is required so I can help [Company X] succeed.	Index
66		People at [Company X] care about me as a person.	Index
67		My efforts are valued at [Company X].	Index
68		My contribution to [Company X] makes a difference.	Index
69		I feel highly engaged at [Company X].	Index

From *Employee Pulse Survey,* by Cisco Systems, Inc., 2009, San Jose, California.

APPENDIX E

Quality Performance Measures by Technology Group

Executive Summary for CDO

Metric / Tech. Group	Primary Metrics					Supplemental Operating Metrics					
	CFD Incoming	CFD Backlog	CFD MTTR	DPAI	% RNE	% CFD	TEACAT MTTR	IFD MTTR	QT@EC	CSAT SW	REWORK COST % OF REV (Updated Qtrly)
CDO	3866.5	1895.1	39.1	96.7	94.3	7	297.6	46.1	N/A	4.29	3.5 %
ANSG	1138.3	739.7	51.3	96.5	91.4	11.1	541.5	63.8	N/A	4.32	2.8 %
DSSG	502.5	226.2	34.8	98.8	95.7	4.7	70.6	58.5	N/A	4.3	1.6 %
ETG	96.8	46.6	28.7	95.4	98	5.1	437.5	46.6	N/A	4.09	10.9 %
SAVBU	17.5	9.9	75.5	40.2	69.1	1.8	444.5	N/A	N/A	N/A	4.2 %
SPG	702.5	262.2	29.2	94.9	94.4	5.1	81.4	N/A	N/A	4.1	4 %
SWG	1353.3	527.9	31.5	97.4	95.6	8.2	362.2	41.3	N/A	4.24	9.7 %

From *Software Quality Dashboard*, by Cisco Systems, Inc., 2009, San Jose, California.

APPENDIX F

Detailed Results of Correlation Analysis for the 104 Variables Evaluated in Question One

Variables tested	**Pearson Correlation Coefficient ("r")**	**Significance probability ("p")**	**r^2 value (value is only being reported for those variables yielding a $p \leq .05$)**	**Conclusion**
Index and achieving results	.46	.12		The p-value did not meet the standard of statistical significance.
Collaboration and achieving results	.15	.62		The p-value did not meet the standard of statistical significance.
Communication and achieving results	.22	.48		The p-value did not meet the standard of statistical significance.
Development and achieving results	.16	.60		The p-value did not meet the standard of statistical significance.
Innovation excellence and achieving results	-.14	.66		The p-value did not meet the standard of statistical significance.
Organizational alignment and achieving results	.34	.27		The p-value did not meet the standard of statistical significance.
Recognition and achieving results	.30	.33		The p-value did not meet the standard of statistical significance.
Respect for people and achieving results	.33	.29		The p-value did not meet the standard of statistical significance.
Index and building capability	.06	.84		The p-value did not meet the standard of statistical significance.
Collaboration and building capability	-.25	.42		The p-value did not meet the standard of statistical significance.
Communication and building capability	-.02	.94		The p-value did not meet the standard of statistical significance.
Development and building capability	-.17	.59		The p-value did not meet the standard of statistical significance.
Innovation excellence and building capability	-.05	.87		The p-value did not meet the standard of statistical significance.
Organizational alignment and building capability	.01	.95		The p-value did not meet the standard of statistical significance.

Recognition and building capability	.18	.56		The p-value did not meet the standard of statistical significance.
Respect for people and building capability	.06	.83		The p-value did not meet the standard of statistical significance.
Index and developing others	.29	.34		The p-value did not meet the standard of statistical significance.
Collaboration and developing others	.03	.91		The p-value did not meet the standard of statistical significance.
Communication and developing others	.23	.46		The p-value did not meet the standard of statistical significance.
Development and developing others	.14	.65		The p-value did not meet the standard of statistical significance.
Innovation excellence and developing others	-.10	.73		The p-value did not meet the standard of statistical significance.
Organizational alignment and developing others	.57	.05	0.3267; 32.67% of the change in employee engagement scores associated with organizational alignment can be accounted for by differences in the category associated with the leadership competency developing others.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between organizational alignment and developing others. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.
Recognition and developing others	.39	.20		The p-value did not meet the standard of statistical significance.
Respect for people and developing others	.40	.18		The p-value did not meet the standard of statistical significance.
Index and demonstrating passion	.27	.38		The p-value did not meet the standard of statistical significance.
Collaboration and demonstrating passion	.13	.67		The p-value did not meet the standard of statistical significance.
Communication and demonstrating passion	.23	.45		The p-value did not meet the standard of statistical significance.

Development and demonstrating passion	.11	.71		The p-value did not meet the standard of statistical significance.
Innovation excellence and demonstrating passion	-.24	.44		The p-value did not meet the standard of statistical significance.
Organizational alignment and demonstrating passion	.58	.04	.3437; 34.37% of the change in employee engagement scores associated with organizational alignment can be accounted for by differences in the category associated with the leadership competency demonstrating passion.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a statistically significant relationship between organizational alignment and demonstrating passion. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.
Recognition and demonstrating passion	.20	.52		The p-value did not meet the standard of statistical significance.
Respect for people and demonstrating passion	.37	.22		The p-value did not meet the standard of statistical significance.
Index and developing self	-.09	.77		The p-value did not meet the standard of statistical significance.
Collaboration and developing self	.21	.50		The p-value did not meet the standard of statistical significance.
Communication and developing self	.10	.74		The p-value did not meet the standard of statistical significance.
Development and developing self	.05	.85		The p-value did not meet the standard of statistical significance.
Innovation excellence and developing self	-.38	.22		The p-value did not meet the standard of statistical significance.
Organizational alignment and developing self	.38	.21		The p-value did not meet the standard of statistical significance.
Recognition and developing self	.15	.63		The p-value did not meet the standard of statistical significance.
Respect for people and developing self	.40	.19		The p-value did not meet the standard of statistical significance.

Index and empowering teams	.33	.28	The p-value did not meet the standard of statistical significance.
Collaboration and empowering teams	.05	.87	The p-value did not meet the standard of statistical significance.
Communication and empowering teams	.14	.65	The p-value did not meet the standard of statistical significance.
Development and empowering teams	.10	.75	The p-value did not meet the standard of statistical significance.
Innovation excellence and empowering teams	-.24	.44	The p-value did not meet the standard of statistical significance.
Organizational alignment and empowering teams	.29	.35	The p-value did not meet the standard of statistical significance.
Recognition and empowering teams	.24	.43	The p-value did not meet the standard of statistical significance.
Respect for people and empowering teams	.30	.33	The p-value did not meet the standard of statistical significance.
Index and engaging others	-.12	.69	The p-value did not meet the standard of statistical significance.
Collaboration and engaging others	.03	.92	The p-value did not meet the standard of statistical significance.
Communication and engaging others	.01	.97	The p-value did not meet the standard of statistical significance.
Development and engaging others	-.03	.90	The p-value did not meet the standard of statistical significance.
Innovation excellence and engaging others	-.48	.11	The p-value did not meet the standard of statistical significance.
Organizational alignment and engaging others	.18	.57	The p-value did not meet the standard of statistical significance.
Recognition and engaging others	-.02	.94	The p-value did not meet the standard of statistical significance.
Respect for people and engaging others	.25	.43	The p-value did not meet the standard of statistical significance.
Index and earning trust	-.25	.42	The p-value did not meet the standard of statistical significance.
Collaboration and earning trust	.27	.38	The p-value did not meet the standard of statistical significance.

Communication and earning trust	.06	.84		The p-value did not meet the standard of statistical significance.
Development and earning trust	.17	.59		The p-value did not meet the standard of statistical significance.
Innovation excellence and earning trust	-.42	.16		The p-value did not meet the standard of statistical significance.
Organizational alignment and earning trust	-.05	.86		The p-value did not meet the standard of statistical significance.
Recognition and earning trust	.05	.87		The p-value did not meet the standard of statistical significance.
Respect for people and earning trust	.25	.43		The p-value did not meet the standard of statistical significance.
Index and leading change	.31	.32		The p-value did not meet the standard of statistical significance.
Collaboration and leading change	.19	.55		The p-value did not meet the standard of statistical significance.
Communication and leading change	.21	.49		The p-value did not meet the standard of statistical significance.
Development and leading change	.13	.66		The p-value did not meet the standard of statistical significance.
Innovation excellence and leading change	-.10	.74		The p-value did not meet the standard of statistical significance.
Organizational alignment and leading change	.62	.03	.3861; 38.61% of the change in employee engagement scores associated with organizational alignment can be accounted for by differences in the category associated with the leadership competency leading. change	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a statistically significant relationship between organizational alignment and demonstrating passion. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.
Recognition and leading change	.35	.25		The p-value did not meet the standard of statistical significance.

Respect for people and leading change	.53	.07	The p-value did not meet the standard of statistical significance.
Index and overall effectiveness	-.03	.91	The p-value did not meet the standard of statistical significance.
Collaboration and overall effectiveness	.28	.36	The p-value did not meet the standard of statistical significance.
Communication and overall effectiveness	.21	.49	The p-value did not meet the standard of statistical significance.
Development and overall effectiveness	.13	.67	The p-value did not meet the standard of statistical significance.
Innovation excellence and overall effectiveness	-.24	.44	The p-value did not meet the standard of statistical significance.
Organizational alignment and overall effectiveness	.35	.25	The p-value did not meet the standard of statistical significance.
Recognition and overall effectiveness	.26	.41	The p-value did not meet the standard of statistical significance.
Respect for people and overall effectiveness	.52	.08	The p-value did not meet the standard of statistical significance.
Index and promoting innovation	.10	.75	The p-value did not meet the standard of statistical significance.
Collaboration and promoting innovation	.36	.24	The p-value did not meet the standard of statistical significance.
Communication and promoting innovation	.08	.79	The p-value did not meet the standard of statistical significance.
Development and promoting innovation	.31	.32	The p-value did not meet the standard of statistical significance.
Innovation excellence and promoting innovation	-.36	.24	The p-value did not meet the standard of statistical significance.
Organizational alignment and promoting innovation	.10	.75	The p-value did not meet the standard of statistical significance.
Recognition and promoting innovation	.32	.30	The p-value did not meet the standard of statistical significance.
Respect for people and promoting innovation	.44	.14	The p-value did not meet the standard of statistical significance.
Index and shaping strategy	.18	.56	The p-value did not meet the standard of statistical significance.

Collaboration and shaping strategy	.45	.14	The p-value did not meet the standard of statistical significance.
Communication and shaping strategy	.18	.56	The p-value did not meet the standard of statistical significance.
Development and shaping strategy	.32	.30	The p-value did not meet the standard of statistical significance.
Innovation excellence and shaping strategy	-.29	.34	The p-value did not meet the standard of statistical significance.
Organizational alignment and shaping strategy	.26	.40	The p-value did not meet the standard of statistical significance.
Recognition and shaping strategy	.31	.32	The p-value did not meet the standard of statistical significance.
Respect for people and shaping strategy	.52	.08	The p-value did not meet the standard of statistical significance.
Index and working across boundaries	-.16	.60	The p-value did not meet the standard of statistical significance.
Collaboration and working across boundaries	.24	.44	The p-value did not meet the standard of statistical significance.
Communication and working across boundaries	.12	.68	The p-value did not meet the standard of statistical significance.
Development and working across boundaries	.16	.60	The p-value did not meet the standard of statistical significance.
Innovation excellence and working across boundaries	-.45	.13	The p-value did not meet the standard of statistical significance.
Organizational alignment and working across boundaries	.20	.53	The p-value did not meet the standard of statistical significance.
Recognition and working across boundaries	.08	.79	The p-value did not meet the standard of statistical significance.
Respect for people and working across boundaries	.42	.16	The p-value did not meet the standard of statistical significance.

Note*: n*=12 for each group represented.

APPENDIX G

Detailed Results of Correlation Analysis for the 57 Variables Evaluated in Question Two

Variables tested	**Pearson Correlation Coefficient ("r")**	**Significance probability ("p")**	**r^2 value (value is only being reported for those variables yielding a $p \leq .05$)**	**Conclusion**
CFD and index	.24	.40		The p-value did not meet the standard of statistical significance.
MTTR and index	.16	.58		The p-value did not meet the standard of statistical significance.
RNE and index	-.18	.52		The p-value did not meet the standard of statistical significance.
DPAI and index	.08	.76		The p-value did not meet the standard of statistical significance.
CSAT and index	-.27	.34		The p-value did not meet the standard of statistical significance.
IFD and index	-.09	.75		The p-value did not meet the standard of statistical significance.
TQ@FC and index	-	-		not available
CFD and collaboration	.55	.04	r^2 = .3031; 30.31% of the change in customer found defects can be accounted for by differences in the employee engagement scores associated with collaboration.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between CFD and Collaboration. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.
MTTR and collaboration	.52	.05	r^2 = .2739; 27.39% of the change in mean time to resolve can be accounted for by differences in the category associated with collaboration in the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between MTTR and collaboration. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.
RNE and collaboration	.14	.61		The p-value did not meet the standard of statistical significance.

DPAI and collaboration	.43	.12		The p-value did not meet the standard of statistical significance.
CSAT and collaboration	.15	.58		The p-value did not meet the standard of statistical significance.
IFD and collaboration	.31	.27		The p-value did not meet the standard of statistical significance.
TQ@FC and collaboration	-	-		not available
CFD and communication	.25	.37		The p-value did not meet the standard of statistical significance.
MTTR and communication	.17	.56		The p-value did not meet the standard of statistical significance.
RNE and communication	-.28	.32		The p-value did not meet the standard of statistical significance.
DPAI and communication	.00	.98		The p-value did not meet the standard of statistical significance.
CSAT and communication	-.21	.45		The p-value did not meet the standard of statistical significance.
IFD and communication	-.04	.88		The p-value did not meet the standard of statistical significance.
TQ@FC and communication	-	-		not available
CFD and development	.53	.04	r^2 = .2866; 28.66% of the change in customer found defects can be accounted for by differences in the category associated with development in the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between CFD and development. The positive value reflected in the correlation coefficient mean that the corresponding variables vary together positively or in the same direction.
MTTR and development	.47	.08		The p-value did not meet the standard of statistical significance.
RNE and development	-.03	.90		The p-value did not meet the standard of statistical significance.
DPAI and development	.30	.29		The p-value did not meet the standard of statistical significance.
CSAT and development	.05	.83		The p-value did not meet the standard of statistical significance.
IFD and development	.24	.39		The p-value did not meet the standard of statistical significance.

TQ@FC and development	-	-		not available
CFD and innovation excellence	.16	.56		The p-value did not meet the standard of statistical significance.
MTTR and innovation excellence	.08	.78		The p-value did not meet the standard of statistical significance.
RNE and innovation excellence	-.32	.25		The p-value did not meet the standard of statistical significance.
DPAI and innovation excellence	-.07	.79		The p-value did not meet the standard of statistical significance.
CSAT and innovation excellence	-.25	.37		The p-value did not meet the standard of statistical significance.
IFD and innovation excellence	-.10	.72		The p-value did not meet the standard of statistical significance.
TQ@FC and innovation excellence	-	-		not available
CFD and organizational alignment	-.31	.26		The p-value did not meet the standard of statistical significance.
MTTR and organizational alignment	-.36	.20		The p-value did not meet the standard of statistical significance.
RNE and organizational alignment	-.05	.85		The p-value did not meet the standard of statistical significance.
DPAI and organizational alignment	-.06	.81		The p-value did not meet the standard of statistical significance.
CSAT and organizational alignment	-.62	.01	r^2 = .3922; 39.22% of the change in customer satisfaction can be accounted for by differences in the category associated with organizational alignment in the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between CSAT and organizational alignment. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.
IFD and organizational alignment	-.54	.04	r^2 = .3016; 30.16% of the change in internal found defects can be accounted for by differences in the category associated with organizational alignment in the employee engagement survey.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between IFD and organizational alignment. The negative values reflected in the correlation coefficient mean that the corresponding variables

			vary together negatively or in opposite directions.
TQ@FC and organizational alignment	-	-	not available
CFD and recognition	.40	.15	The p-value did not meet the standard of statistical significance.
MTTR and recognition	.33	.23	The p-value did not meet the standard of statistical significance.
RNE and recognition	-.02	.93	The p-value did not meet the standard of statistical significance.
DPAI and recognition	.28	.32	The p-value did not meet the standard of statistical significance.
CSAT and recognition	-.14	.62	The p-value did not meet the standard of statistical significance.
IFD and recognition	.05	.84	The p-value did not meet the standard of statistical significance.
TQ@FC and recognition	-	-	not available
CFD and respect for people	.47	.08	The p-value did not meet the standard of statistical significance.
MTTR and respect for people	.44	.11	The p-value did not meet the standard of statistical significance.
RNE and respect for people	.06	.83	The p-value did not meet the standard of statistical significance.
DPAI and respect for people	.32	.25	The p-value did not meet the standard of statistical significance.
CSAT and respect for people	.12	.67	The p-value did not meet the standard of statistical significance.
IFD and respect for people	.12	.67	The p-value did not meet the standard of statistical significance.
TQ@FC and respect for people	-	-	not available

Note*: N*=17 for each group represented.

APPENDIX H

Detailed Results of Correlation Analysis for the 104 Variables Evaluated in Question Three

Variables tested	**Pearson Correlation Coefficient ("r")**	**Significance probability ("p")**	**r^2 value (value is only being reported for those variables yielding a $p \leq .05$)**	**Conclusion**
Index and achieving results	-.28	.36		The p-value did not meet the standard of statistical significance.
Collaboration and achieving results	-.24	.43		The p-value did not meet the standard of statistical significance.
Communication and achieving results	-.36	.24		The p-value did not meet the standard of statistical significance.
Development and achieving results	-.33	.29		The p-value did not meet the standard of statistical significance.
Innovation excellence and achieving results	-.19	.53		The p-value did not meet the standard of statistical significance.
Organizational alignment and achieving results	-.40	.04	r^2 = .3381; 33.81% of the change in employee engagement scores associated with organizational alignment can be accounted for by the size of variance in supervisor and subordinate perceptions of capability associated with the leadership competency demonstrating passion.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a statistically significant relationship between organizational alignment and demonstrating passion. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.
Recognition and achieving results	-.34	.26		The p-value did not meet the standard of statistical significance.
Respect for people and achieving results	-.51	.08		The p-value did not meet the standard of statistical significance.
Index and building capability	-.16	.61		The p-value did not meet the standard of statistical significance.
Collaboration and building capability	-.10	.75		The p-value did not meet the standard of statistical significance.
Communication and building capability	-.16	.61		The p-value did not meet the standard of statistical significance.

Development and building capability	-.05	.86	The p-value did not meet the standard of statistical significance.
Innovation excellence and building capability	-.07	.82	The p-value did not meet the standard of statistical significance.
Organizational alignment and building capability	-.46	.12	The p-value did not meet the standard of statistical significance.
Recognition and building capability	-.10	.74	The p-value did not meet the standard of statistical significance.
Respect for people and building capability	-.22	.48	The p-value did not meet the standard of statistical significance.
Index and developing others	-.07	.81	The p-value did not meet the standard of statistical significance.
Collaboration and developing others	-.12	.69	The p-value did not meet the standard of statistical significance.
Communication and developing others	-.36	.24	The p-value did not meet the standard of statistical significance.
Development and developing others	-.28	.37	The p-value did not meet the standard of statistical significance.
Innovation excellence and developing others	-.04	.89	The p-value did not meet the standard of statistical significance.
Organizational alignment and developing others	-.27	.38	The p-value did not meet the standard of statistical significance.
Recognition and developing others	-.17	.59	The p-value did not meet the standard of statistical significance.
Respect for people and developing others	-.28	.36	The p-value did not meet the standard of statistical significance.
Index and demonstrating passion	-.11	.71	The p-value did not meet the standard of statistical significance.
Collaboration and demonstrating passion	-.17	.59	The p-value did not meet the standard of statistical significance.
Communication and demonstrating passion	-.36	.24	The p-value did not meet the standard of statistical significance.
Development and demonstrating passion	-.30	.33	The p-value did not meet the standard of statistical significance.
Innovation excellence and demonstrating passion	-.10	.19	The p-value did not meet the standard of statistical significance.
Organizational alignment and demonstrating passion	-.40	.19	The p-value did not meet the standard of statistical significance.
Recognition and demonstrating passion	-.26	.40	The p-value did not meet the standard of statistical significance.

Respect for people and demonstrating passion	-.40	.19	The p-value did not meet the standard of statistical significance.
Index and developing self	.09	.75	The p-value did not meet the standard of statistical significance.
Collaboration and developing self	.00	.99	The p-value did not meet the standard of statistical significance.
Communication and developing self	-.18	.56	The p-value did not meet the standard of statistical significance.
Development and developing self	-.09	.77	The p-value did not meet the standard of statistical significance.
Innovation excellence and developing self	.22	.47	The p-value did not meet the standard of statistical significance.
Organizational alignment and developing self	-.28	.37	The p-value did not meet the standard of statistical significance.
Recognition and developing self	-.05	.87	The p-value did not meet the standard of statistical significance.
Respect for people and developing self	-.22	.48	The p-value did not meet the standard of statistical significance.
Index and empowering teams	-.17	.58	The p-value did not meet the standard of statistical significance.
Collaboration and empowering teams	-.20	.53	The p-value did not meet the standard of statistical significance.
Communication and empowering teams	-.40	.19	The p-value did not meet the standard of statistical significance.
Development and empowering teams	-.31	.32	The p-value did not meet the standard of statistical significance.
Innovation excellence and empowering teams	-.21	.49	The p-value did not meet the standard of statistical significance.
Organizational alignment and empowering teams	-.54	.06	The p-value did not meet the standard of statistical significance.
Recognition and empowering teams	-.29	.35	The p-value did not meet the standard of statistical significance.
Respect for people and empowering teams	-.45	.13	The p-value did not meet the standard of statistical significance.
Index and engaging others	.28	.37	The p-value did not meet the standard of statistical significance.
Collaboration and engaging others	-.13	.68	The p-value did not meet the standard of statistical significance.
Communication and engaging others	-.28	.36	The p-value did not meet the standard of statistical significance.
Development and engaging others	-.16	.61	The p-value did not meet the standard of statistical

			significance.
Innovation excellence and engaging others	.13	.67	The p-value did not meet the standard of statistical significance.
Organizational alignment and engaging others	-.07	.82	The p-value did not meet the standard of statistical significance.
Recognition and engaging others	.07	.81	The p-value did not meet the standard of statistical significance.
Respect for people and engaging others	-.18	.55	The p-value did not meet the standard of statistical significance.
Index and earning trust	-.05	.86	The p-value did not meet the standard of statistical significance.
Collaboration and earning trust	-.21	.50	The p-value did not meet the standard of statistical significance.
Communication and earning trust	-.27	.38	The p-value did not meet the standard of statistical significance.
Development and earning trust	-.24	.44	The p-value did not meet the standard of statistical significance.
Innovation excellence and earning trust	.16	.61	The p-value did not meet the standard of statistical significance.
Organizational alignment and earning trust	-.12	.69	The p-value did not meet the standard of statistical significance.
Recognition and earning trust	.05	.86	The p-value did not meet the standard of statistical significance.
Respect for people and earning trust	-.26	.40	The p-value did not meet the standard of statistical significance.
Index and leading change	-.11	.72	The p-value did not meet the standard of statistical significance.
Collaboration and leading change	.05	.86	The p-value did not meet the standard of statistical significance.
Communication and leading change	-.04	.89	The p-value did not meet the standard of statistical significance.
Development and leading change	.04	.88	The p-value did not meet the standard of statistical significance.
Innovation excellence and leading change	-.04	.88	The p-value did not meet the standard of statistical significance.
Organizational alignment and leading change	-.41	.18	The p-value did not meet the standard of statistical significance.
Recognition and leading change	-.01	.95	The p-value did not meet the standard of statistical significance.
Respect for people and leading change	-.10	.73	The p-value did not meet the standard of statistical significance.

Index and overall effectiveness	-.19	.55	The p-value did not meet the standard of statistical significance.
Collaboration and overall effectiveness	.13	.67	The p-value did not meet the standard of statistical significance.
Communication and overall effectiveness	.04	.88	The p-value did not meet the standard of statistical significance.
Development and overall effectiveness	.06	.85	The p-value did not meet the standard of statistical significance.
Innovation excellence and overall effectiveness	-.12	.69	The p-value did not meet the standard of statistical significance.
Organizational alignment and overall effectiveness	-.28	.37	The p-value did not meet the standard of statistical significance.
Recognition and overall effectiveness	.00	.99	The p-value did not meet the standard of statistical significance.
Respect for people and overall effectiveness	.02	.93	The p-value did not meet the standard of statistical significance.
Index and promoting innovation	-.16	.61	The p-value did not meet the standard of statistical significance.
Collaboration and promoting innovation	-.09	.77	The p-value did not meet the standard of statistical significance.
Communication and promoting innovation	-.09	.76	The p-value did not meet the standard of statistical significance.
Development and promoting innovation	-.05	.86	The p-value did not meet the standard of statistical significance.
Innovation excellence and promoting innovation	-.10	.74	The p-value did not meet the standard of statistical significance.
Organizational alignment and promoting innovation	-.44	.15	The p-value did not meet the standard of statistical significance.
Recognition and promoting innovation	-.13	.67	The p-value did not meet the standard of statistical significance.
Respect for people and promoting innovation	-.22	.67	The p-value did not meet the standard of statistical significance.
Index and shaping strategy	-.28	.37	The p-value did not meet the standard of statistical significance.
Collaboration and shaping strategy	-.20	.51	The p-value did not meet the standard of statistical significance.
Communication and shaping strategy	-.32	.30	The p-value did not meet the standard of statistical significance.
Development and shaping strategy	-.28	.36	The p-value did not meet the standard of statistical significance.

Innovation excellence and shaping strategy	-.17	.59		The p-value did not meet the standard of statistical significance.
Organizational alignment and shaping strategy	-.61	.03	r^2 = .3735; 37.35% of the change in organizational alignment can be accounted for by differences in the size of variance between employee and supervisor perceptions associated with the leadership competency shaping strategy.	Computer analysis yielded a strong correlation coefficient coupled with a p-value that meets the threshold for statistical significance suggesting there is a relationship between organizational alignment and developing others. The negative values reflected in the correlation coefficient mean that the corresponding variables vary together negatively or in opposite directions.
Recognition and shaping strategy	-.30	.33		The p-value did not meet the standard of statistical significance.
Respect for people and shaping strategy	-.46	.13		The p-value did not meet the standard of statistical significance.
Index and working across boundaries	.55	.06		The p-value did not meet the standard of statistical significance.
Collaboration and working across boundaries	.03	.91		The p-value did not meet the standard of statistical significance.
Communication and working across boundaries	.01	.96		The p-value did not meet the standard of statistical significance.
Development and working across boundaries	-.15	.62		The p-value did not meet the standard of statistical significance.
Innovation excellence and working across boundaries	.22	.48		The p-value did not meet the standard of statistical significance.
Organizational alignment and working across boundaries	.48	.11		The p-value did not meet the standard of statistical significance.
Recognition and working across boundaries	.28	.37		The p-value did not meet the standard of statistical significance.
Respect for people and working across boundaries	.13	.67		The p-value did not meet the standard of statistical significance.

Note*: n*=12 for each group represented.